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Journal of Home Economics

MARTHA VAN RENSSELAER

The American Home Economics Association, at its annual meeting in Atlanta, June 23, 1932, adopted the following resolution:

"WHEREAS the death of Martha Van Rensselaer means that the American Home Economics Association has lost the wise counsel and beloved companionship of a member who has been active in shaping its policies since its foundation, who has served two years as president and many years as a member of the council, and whose distinguished professional and public service have won her wide recognition as a fine type of home economist

"*Be it resolved* that the American Home Economics Association record its appreciation of her invaluable service and her strong, gracious, and tolerant personality, and that a more adequate description of her and her achievement be published in the JOURNAL OF HOME ECONOMICS and sent to persons and institutions interested in her and in home economics."

The JOURNAL has accordingly asked several of her colleagues to tell of special phases of her work, and hopes that these, together with the other facts assembled in the following pages, may serve as a reminder of her personality and her accomplishment.

BIOGRAPHICAL FACTS

Martha Van Rensselaer, daughter of Henry Killian and Arvilla Owen Van Rensselaer, was born on June 21, 1864, in Randolph, Cattaraugus County, New York. She was graduated from Chamberlain Institute there in 1884, taught for ten years in the public schools of Western New York, and from 1894 to 1900 was school commissioner in Cattaraugus County, often combining the traveling and inspection work of this position with instruction at teachers' institutes. In 1900 she was called to the State College of Agriculture at Cornell University for an untried educational venture, the development of extension work for rural women.

When the success of this made necessary resident instruction in subjects pertaining to rural homemaking and gradually led to the establishment of the College of Home Economics, she combined work as extension leader with the direction of the home economics instruction. In addition she was a member of the executive staff of the United States Food Administration for the greater part of the war period, homemaking editor for *The Delineator*, 1920–26, and assistant director of the White House Conference on Child Health and Protection, 1929–32. She was active in the Lake Placid Conference and later in the American Home Economics Association, of which she was a charter member, serving frequently as councillor and as president from 1914 to 1916. She was granted the degree of bachelor of science from Cornell University in 1909 and was also holder of the honorary degree of doctor of pedagogy. For service with the American Relief Commission in Belgium she was made chevalier of the Order of the Crown. In 1923 she was chosen as one of the twelve greatest women of the United States by a committee appointed by the National League of Women Voters. She died in St. Luke's Hospital, New York City, on May 26, 1932, after many months of threatening illness which she had not allowed to interfere with her usual active life.

AS PIONEER IN AGRICULTURAL EXTENSION WORK FOR WOMEN

LIBERTY HYDE BAILEY

One cannot understand the contribution Martha Van Rensselaer made to the extension service of the country until one knows something of the situation a third of a century ago.

At the opening of the century there was no organized public extension work as we know it now. The colleges of agriculture were beginning to expand, catching vision of a great expanse yet educationally unexplored. The personal and social problem of the millions of men and women on the land and of those in rural settlements who were in close contact with the farms, began to appeal to officers responsible for the conduct of institutions and to formulate itself as an endless urgency in human affairs. The problem could not be met alone by teaching at the institutions nor yet by research. An invigorating educational enterprise must be carried to the people, with driving power behind it. The colleges of agriculture as organs of the states and nation, while still teaching the increasing numbers of students who came to them and broadening their basis of

research, entered new fields with courage and with a missionary zeal. It was soon seen that it was not sufficient to help the man on the land. The woman must be helped as well; and here came Martha Van Rensselaer as one of the pioneers.

At the College of Agriculture of Cornell University, before that College was a state institution, a reading course for farmers was projected in 1900. Reading bulletins were issued, accompanied by discussion papers asking questions on the text; reading clubs were organized. Two years later a farmers wives' reading course was established, with discussion papers and the organization of clubs. It was fortunate that this enterprise had for its immediate organizer and mentor Martha Van Rensselaer, who came directly from the people with experience as teacher, county school commissioner, and counsellor in rural affairs, alert, gracious, sympathetic, courageous, tireless.

It is well to recall that it was in the colleges of agriculture that the great movement for what we now know as home economics as a state and national system took form. Its initial purpose in these colleges was not an "uplift" enterprise but a direct natural expansion of established educational institutions, comparable for the life of women with similar work for the life of men. Its basis was the family; its effort to develop the best and most resourceful living under rural conditions; it covered many subjects of human interest and withheld itself from none that could be put into effective educational form for its purpose. At Cornell, the home economics work began with the extension phase, to meet an evident need, under Miss Van Rensselaer.

She knew the rural people and their needs. She was eminently practical. Her first bulletin in the farmers wives' reading course was "Saving Steps," November 1902. She asked questions at the outset. Then followed simple direct statements on the ways to simplify housekeeping by the introduction of improvements. Her paragraphs were terse and to the point.

The response to this illustrated little bulletin was quick and sincere. Here was the everyday problem stated by one who knew it, without condescension or rhetoric.

The reading course grew, the clubs grew, requests arose from localities; students came to receive resident instruction; demands of many kinds developed, as they always do when a needful work is well accomplished. Martha Van Rensselaer grew to meet the situations as they arose and to anticipate new ones. She was a good field worker, an excellent counsellor, quickly adaptable in organizations. She met all kinds of people effec-

tively. Her activities soon passed the bounds of her native state. To her, extension work was always an educational experience, one expression or part of an institution constituted in the public interest. She assembled good associates and staff. She envisioned a coherent college, broadly based, rooted in the advancement of women and the integrity of the home; and in her lifetime the dream came true.

AS COLLEGE ADMINISTRATOR

ALBERT RUSSELL MANN

Martha Van Rensselaer came to Cornell University in 1900 to organize a system of reading courses for farm women—a lone pioneer in a virgin and fertile field. Her first accomplishments were germinal in character, and with her arrival on the Cornell campus the seed of home economics was implanted in the responsive soil of the University. When she passed from our midst at the end of thirty-two years of distinguished service, the seed she had planted and the plant she had nurtured had become a college of home economics under her direction, fully accepted in the sisterhood of colleges within the University. It was an achievement worthy to be reckoned among the great achievements in any generation.

The historical facts are matters of printed record elsewhere, and need to be mentioned here only in briefest outline to suggest the consistent progress under Miss Van Rensselaer's indomitable leadership. Contrary to the usual experience, the resident instruction found its initial inspiration in the extension service. The farm women gave quick and earnest response to Miss Van Rensselaer's first service to their needs. What they so eagerly seized upon pointed the way to organized instruction on the concerns of the farm family and the rural household for young women destined to become homemakers. So evident was the need and the opportunity that in 1903 Miss Van Rensselaer offered the first credit course in home economics at Cornell University. It was a brief, general survey of home problems and ways of meeting them; but it was an historic beginning.

With the needs of farm girls and women still uppermost in mind, a winter course in home economics was offered in 1905–06 under Miss Van Rensselaer's direction, participated in by twenty-four eminent lecturers assembled from many parts of the United States, in addition to teachers from several colleges within the University. This continued for many years as an annual offering.

In 1907, Flora Rose, a graduate of Kansas State Agricultural College and of Columbia University, was called to assist Martha Van Rensselaer. Miss Van Rensselaer's training and interests inclined her toward the economic and social aspects of the home, including questions of management, equipment, sanitation, and the relationships in family life. Miss Rose had studied in human nutrition and approached the problems from the standpoint of the contributions of the physical and biological sciences to personal and family well-being. Nothing could have been more fortunate for the developments which subsequently were to come to pass at Cornell University than the coming together of these two persons, with their distinctive abilities and their capacities for intimate and continuous cooperation. There began between these two in 1907 an association, unbroken until Miss Van Rensselaer's death, rare in its charm and devotion, exceptional in its significance for a developing field of knowledge.

From this point progress moved rapidly. In 1908 a department of home economics was created, with Miss Van Rensselaer and Miss Rose as its staff. With the opening of the year 1908–09, a curriculum for a four-year specialized course in home economics was offered to students; and here began the diversification, specialization, and professionalization of the field of home economics at Cornell which matured and broadened with the passing years until it led inevitably to full collegiate status. The department of home economics was elevated to the rank of the School of Home Economics in the State College of Agriculture in 1919. The onward sweep won legislative sanction in 1925 for the separation and recognition of this School as the New York State College of Home Economics, coordinate with the other colleges at Cornell University. Through all these developments Miss Van Rensselaer, in close association with Miss Rose, led the way.

The first building for the department of home economics came by legislative appropriation of $150,000 in 1910. To house the present highly developed and greatly expanded College of Home Economics the state legislature, by acts of 1929 and 1930, has provided $985,000. The new building, to cost with its equipment upwards of $1,300,000, is now rising rapidly. It is to be known as Martha Van Rensselaer Hall; and it will fittingly preserve in Cornell the memory of her whose honored name it bears and whose achievements and aspirations it will serve.

While the resident program in home economics was being carefully and painstakingly wrought out, great changes and developments were taking place in the extension service in home economics, always a most intimate concern of Miss Van Rensselaer's. The place of research in the College

organization had to be determined, and qualified investigators found and provided for. Miss Van Rensselaer took a leading part in every advance and every decision. While the progress of an educational movement or institution is the composite result of the contributions of all who have been concerned with it, it is often that one great mind and purpose is chiefly responsible for the course. In all the developments at Cornell, Director Van Rensselaer was the central, guiding figure, in most intimate association and sharing of thought, plan, task, and vision with Flora Rose, directing the undertaking and pressing forward.

In a few words one cannot measure Martha Van Rensselaer's contribution to the development of home economics at Cornell. She was an active force at every point. She was deeply concerned with any proposals which might affect the status and recognition of home economics within the University or the State. She had a passion for quality of work which penetrated alike the teaching, research, and extension services. Her chief intolerance was toward superficial or sentimental teaching, lacking sound foundations in tested fact or experience. She saw woman, the family, and the field of knowledge related chiefly to their interests, arrayed always in dignity, fortified by knowledge and by methods for its impartation which inspired confidence and respect. She saw always the high place of woman and the family in the life of state and nation. Her view was comprehensive; it was penetrating; it was understanding; and it was constructive; and so it directed her course.

Miss Van Rensselaer seemed without limit in her capacity for sustained, arduous work, mental and physical, practically without respite year after year. Few men or women carry successfully the weight of responsibility and activity which Miss Van Rensselaer bore from the day she came to the campus until the very hour of her death. She possessed unwavering fortitude, could meet disappointments without discouragement; in fact, disappointments energized her to more compelling activity. Clarity and tenacity of purpose and of ideals kept her course set always toward higher attainments. An indomitable spirit sustained and impelled her.

Martha Van Rensselaer revealed unmistakably the characteristics and qualities which mark greatness; and she established her place securely among the founders of home economics education in America and among the commanding figures in Cornell's history. The development of great enterprises awaits the coming of such persons as Doctor Van Rensselaer; when she came, the enterprise to which she set her hand rapidly became a great reality, a dynamic thing unfolded to serve vital life needs of this and all generations to come.

AS PRIVATE CITIZEN AND PUBLIC SERVANT

KATHERINE GLOVER

Martha Van Rensselaer was the first-born of her parents, citizens of the little village of Randolph in western New York. Thus she started in the vanguard of life in her family and ended in the vanguard in the larger family of the nation. She was one who always marched ahead of the ranks, breaking ground with new ideas. And when the ranks caught up with her, she had moved on to further horizons.

Endowed with the capacity of the creative worker, she had almost more than anyone I know an ever kindling fire of enthusiasm for creative ideas, whether her own or another's. The last day of her life will always remain an inspiration to those who know of it. She sat in her room in the hospital, where she had gone only after she had completed all arrangements for the laying of the corner stone for the new home economics building at Cornell, refusing to accept the handicaps of the last attack of illness, jesting about the difficulties to which another would have succumbed. Sat up, worked on plans that ran on into the future, and gathered friends about her.

If one had gone to her that last day with some suggestion or new idea I believe she would have met it with the same tireless interest, even though she knew she would not be here to follow its sequence. And if there had been a flaw or weakness in the suggested plan, she would have probed it with unsparing clarity. It was that rare combination of enthusiasm, vision, and steel-like discrimination of judgment that made her so invaluable as ally and guide, so incomparably equipped for leadership.

Because her qualities of leadership were so pronounced, no crisis arose for some years that she was not automatically called upon to serve. During the War she was leader of the food conservation campaign in New York State and later directed the Division of Home Conservation in the United States Food Administration. In 1923, at the request of Mr. Hoover, she went to Belgium to study how the needs of the women of that country might be met by the Commission of Relief in Belgium, and for this service was made chevalier of the Order of the Crown.

More recently her aid was enlisted for both the great conferences called by President Hoover. To her position as assistant director of the White House Conference on Child Health and Protection she brought her seasoned experience as an educator, her pioneer energy in the field of adult education, and a rare ability as an executive; and the scope of the Conference is wider because of her vision; its foundations were strengthened

by her wise counsel; its friendships reach further because of her friendships. The work as it goes on expanding through the country and the world is a quiet, uninscribed memorial to what she gave. Points of the Children's Charter were fittingly read into the service at her funeral.

No one who knew Martha Van Rensselaer in her official life really understood her unless they saw her as the summation of the influences of her early life and of her parentage and inheritance. Randolph was in many ways typical of the small rural villages of western New York; yet its Chamberlain Institute, where she was educated, offered a broader program than most schools of its kind. Her mother was one of those unsung pioneers of a time before women's activities were publicly heralded. She was a quiet power in her community. At her initiative the ministers of five denominations were brought together every Monday morning to take up the affairs of the village and the nearby country which required their help. They cooperatively sheperded the community's affairs, and Arvilla Owen Van Rensselaer shepherded them.

It was of such sturdy forbears that Martha Van Rensselaer came, her mother a descendant of Robert Dale Owen, the Welsh reformer whose philosophy and practices were generations ahead of his day. And on her father's side the Dutch strain was very strong, coming down from Killian Van Rensselaer, who was one of the organizers of the Dutch West India Company.

Her broad sweep of vision was perhaps partly an inheritance from these ancestors. It made her impatient of obstacles and arresting details. All that lay between the vision and the achievement were trifles, but when they blocked the way she cleared them with a dogged persistence. Always unsparing of herself and expecting the best of those who worked with her, she never grew austere or bore any of the scars of struggle. Honors did not sit heavily on her. They merely graced and enriched, leaving her more tolerant as the years went by.

Whether it was to work, to a cause, or to a friendship, she gave of herself unstintingly. It was that complete surrender of small or self-interest which was the distinguishing mark of her character. She yielded nothing in the achievement of an end or the upholding of a standard; and yet with the long years of impersonal service which she was called upon to give, she sacrificed nothing of the human and human-loving qualities. An innate love of play and humor ran like a colorful thread through the whole pattern of her life.

That last day in Ithaca we who had loved her and served with her walked out of Sage Chapel into the freshness of early summer and saw her

start on her last journey back to the little village of her birth. A victorious journey, crowned with tributes from all parts of the country, from the President and the First Lady, who were her warm friends, from the Governor of her state and his wife, who were her warm friends, from ambassadors and national leaders, from her co-workers, and from simple farm women. The life that lay between the early years in Randolph and the return had been filled with drama and achievement. She had become a citizen of the world, a recognized leader in her field, honored by the head of the nation, with friends among all ranks, but always she remained the simple, uncompromising woman who went out as a pioneer teacher and school supervisor and found opportunity in her native section, whose roots were deep in her native soil.

One felt that this return to her birthplace would have been her wish. And that the end also would have been as she would have it, to go while the pulse of service still beat high—a spirit marching valiantly on through the years.

AS A HOME ECONOMIST

As one reviews Martha Van Rensselaer's achievements one realizes that she aided the development of home economics in many ways—by what she did in her own work at Cornell and with the Food Administration and the more recent national conferences, by her personal associations with the members of the home economics profession, and by her many and varied contacts with others outside the home economics field.

The tributes which Dr. Bailey and Dr. Mann have paid to what she accomplished at Cornell are the more impressive because they come from persons outside the home economics field. It is perhaps fitting to supplement them with one by her intimate personal friend and fellow director, Flora Rose, who thus interpreted Miss Van Rensselaer's ideal of home economics education when the corner stone of the new home economics building at Cornell was laid on June 8, less than a fortnight after her death:

> The ideal upon which home economics was conceived and built in this University, like Martha Van Rensselaer herself, was magnificent in its simplicity, its genuineness, and its unerring contact with realities. Its concern was to enrich the daily lives of women, even to that last forgotten woman hidden away on a back-roads farm. Its purpose was to make meaningful to them the tasks which were theirs to perform. Never for a moment in the thirty-two years of the existence of home economics education at Cornell University has the group of educators gathered together in its name been permitted to lose sight of that purpose which brought it into being: to provide

the advantages of education to women through their natural interests and by the creative use of the experiences which the average woman's environment supplies. Martha Van Rensselaer conceived of home economics education as a means by which women's minds could be trained, their capacities released, and their deepest desires satisfied through growth in understanding and direction of their own normal social functioning.

In these thirty-two years since Cornell began through its development of home economics education to help women become more themselves in their own environment, civilization has undergone changes greater in amount and extent than in its whole preceding history. No institution has been more affected by these changes than that natural, original environment of women—the home—and no person in the home has been more affected by these changes than the woman. Within this time the doors of the home have opened out to permit the family to pass freely into the community. They have also opened in to admit the community into the earlier, more intimate and exclusive councils of the family. The need of education for women has changed in kind and increased in extent. In this situation home economics education has begun to flower and bear fruit. One fact about it has become very clear and bears emphasis because of its great social significance—that it is a unique development in education, first because it is distinctly a contribution which the thinking of women has made to the field of education and is an expression of what they feel to be their own needs; second, because it is a symbol of the forces which have begun to mobilize in the interests of human welfare in an age, the machine age, where "things are in the saddle and ride mankind." It takes account of the services which women as women must now render in moulding civilization. It recognizes women as producers and protectors of mankind and conservers and users of goods and purposes to train them to function effectively in the field of their special responsibilities. Its educational procedures make use of the kinds of attitudes, thinking and action which the functioning of women in their natural environment have developed in them.

The need which civilization has for the values which home economics education can give is becoming daily more obvious as the economic debacle resulting from machine age thinking unfolds itself before us.

As we lay the corner stone of this great building, therefore, it is not its material expression in brick and stone and steel, providing for one more big technical educational development, that I would have you consider. Rather it is to its significance as a symbol of new and vital forces arising to meet strenuous modern problems that I would point. The value of the material benefits which it will bestow upon the people who will occupy it fade into nothingness beside the importance of the obligations it imposes upon them to carry on the services to civilization which the achievement of this building in the name of home economics implies.

To the purposeful effort of Martha Van Rensselaer this building stands as a permanent memorial.

Miss Glover has pointed out how this same ideal found expression in her work as assistant director of the White House Conference on Child Health and Protection. It is equally reflected in the work of the subcommittee on housing and home management of which she was chairman

and which in its published report, "The Home and the Child," gives what is perhaps our first systematic discussion of the home and its management as they affect the development of the child. To her work as chairman of the committee on family life of the President's Conference on Home Building and Home Ownership she brought the same conception of the fundamental values of the home, the same courageous facing of realities. The tentative report of the committee's study shows that it recognized the importance—and also the lack—of information which would aid in distinguishing essentials from non-essentials in family life of today:

> Everywhere the older patterns of family life have been destroyed without a swift enough development of new ones to meet our fundamental personal and social needs. If home is to offer more than its most primitive function of shelter—a place to sleep —we must strive to bring back and balance some of its original social values with the more modern concept of its place for individual comfort and expression.

It was a gratification to home economists that these less material elements of the home were included among the subjects considered by the Conference and that leadership in the difficult task of interpreting them was assigned to one so competent to inject their special point of view.

Miss Van Rensselaer's connection with the home economics movement began just as the Lake Placid Conference was formulating its aims, and from 1900 on she was an active attendant at these annual gatherings of those who had caught the vision of what the systematic application of pertinent facts from the natural and social sciences could do "to improve living conditions in the home, the institution, and the community."

When in 1908 the Conference gave place to the American Home Economics Association, she transferred her allegiance to the new organization, appearing on the list of its original members and contributing an article on "Extension Work in Home Economics" to the second issue of its new JOURNAL OF HOME ECONOMICS. She was frequently a member of the council as well as of important committees and served as president from 1914 to 1916. If the annual meeting held in Ithaca in 1913 stands out among such occasions, to her careful planning and genuine hospitality belongs much of the credit. She also was an active and influential member of the home economics section of the Association of Land-Grant Colleges and Universities, acting as chairman in 1928–29. In all these contacts her point of view and her personality were important factors in shaping opinions and policies in home economics.

Influential as she was within the home economics profession, one won-

ders whether her greatest contribution to it may not have been what she did to exemplify and interpret it to those outside. Here she was aided by her delightful personal traits, her handsome face and dignified bearing, her rich voice, her graciousness, her quick responsiveness and delicious sense of fun, but more than all by her sincerity and earnestness and her combination of idealism and good common sense. From her vantage point at Cornell, she gradually won the confidence of persons and organizations throughout the State. The breadth of her active interests is seen by the list of volunteer organizations in which she held office at the time of her death: Board of National Women's Farm and Garden Association, State Board of the New York State Congress of Parents and Teachers, State Board of the League of Women Voters, State Committee of the Department of the American Home of the New York State Federation of Women's Clubs, State Committee of Better Homes in America.

During the War her work on the executive staff of the United States Food Administration brought her wide recognition as a forciful, dependable, cooperative worker and did much to increase general understanding and support of home economics. It also led to her connection with *The Delineator*, through which she was influential in setting higher standards for the homemaking information given by popular magazines for women. She being what she was, her selection by the National League of Women Voters as one of the twelve greatest women of the nation undoubtedly added to popular approval of the profession which she represented. But over and above these more public tokens of esteem, she strengthened the cause and standing of home economics by the confidence she inspired in the many influential men and women with whom she came into personal relations. All home economists justly felt a sense of pride and encouragement when they read President Hoover's words: "Her passing will bring a sense of personal loss to thousands from whom her quiet devotion to every cause looking to the well-being of children and to the enrichment of the life of women had evoked their warm affection and their deep respect."

THE PRESENT STATUS OF THE AMERICAN FAMILY[1]

ANDREW G. TRUXAL

IN CONSIDERING the family as a social institution, several starting points are possible. We may assume that we are hearing the swan song of another venerable and at one time necessary social institution. Or, like the conservative-minded, we may shut our eyes to the changes around us and strike out in all directions with vague and meaningless shibboleths like "the sanctity of the family," and "the strength of America lies in its homes: destroy the home and you destroy the foundation of our social structure." Of these two positions, the former with all its fantastic reasoning seems preferable to the latter with its sentimental and meaningless twaddle. Fortunately, we can follow yet a third line of reasoning and face the multiplicity of changes that have brought about our present society and the concomitant changes that have occurred in the family with the idea of accepting the changes and making such adjustments to them as seem inevitable.

The fact that some form of family has existed in all human societies constitutes not merely an explanation for its existence today, but a reasonable assumption in favor of its at least temporary continuance. To be sure, marriage forms and family forms have gone through considerable variation. Almost all conceivable types of marriage have been tried at one time or another under varying circumstances: one man and many women, one woman and many men, a group of brothers marrying another group of sisters, each one married to all the others, and so on. Similarly we have plenty of anthropological and ethnological evidence for all variations in the form of the family from the most temporary to the most permanent varieties of union. Whatever the form, however, there has always been marriage in human society, as contrasted with mere mating among the animals, and there has always been some kind of family, however transient and temporary.

Just what have been and are the functions of the family? In a super-critical age, when all human institutions are being accepted or discarded

[1] Abbreviated from an address delivered at the New England Conference on Homemaking Education, Massachusetts State College, Amherst, May 2, 1932.

on the basis of the results of a pragmatic test, it seems highly desirable to ask the question. To answer it, however, we must look at the family not merely as it is but as it has been.

To begin with, the family has performed an economic function. There are those like Sumner, Starcke, and others, who would maintain that this was probably the original primary reason for marriage.

> Woman becomes indispensable to man "not on account of an impulse (sex attraction) which is suddenly aroused and as quickly disappears, but on account of a necessity which endures as long as life itself, namely the need of food." Marriage is primarily a form of cooperation in self-maintenance and its bond is tighter or looser according to the advantages of the partnership under existing circumstances. . . . . The union of the sexes is primarily industrial. It has largely so remained through history and is of that character now. In so far as it has become conjugal, parental, poetical, emotional, that is due to advance of civilization and belongs to the higher grade of the cultured. (1)

However, there are those who say that this economic function of the family has disappeared. No longer in an industrial society is the woman an economic partner in the performance of certain tasks—no longer do we permit the wholesale exploitation by parents of their children for economic purposes which characterized the beginnings of industrialism in American society a hundred years ago. With the old household functions of the woman removed by the mechanization and standardization of life, the economic functions of the woman in the home as complementary to those of the male have disappeared. Not only has the patriarchal conception of the family disappeared in this age of woman's rights, but woman has taken her place alongside men in the factory, the trades, and the professions. As Lindquist has pointed out (2), she has declared not merely her personal independence but her economic independence as well. And this is a movement which will doubtless continue, if anything with accelerating speed.

To be sure, the home as a self-sufficing economic unit in which the father, the mother, and the children performed mutually complementary economic functions is gone. Furthermore, woman is no longer necessarily an economic liability—there is no longer any economic necessity for her to enter the marriage bond. However, it is still true, among certain classes at least, that the wage earnings of both father and mother are necessary in order to maintain higher and higher standards of living, to give the children the most in educational opportunities. Especially is it true that the earnings of the woman prove to be extremely valuable in the case of factory workers to tide over periods of unemployment,

sickness, accident, or any other of the exigencies of modern industrialism to which the male worker is susceptible. Granted that this is not a desirable situation, the fact remains that the work of man and woman is still economically complementary, although in a different sense than under a former agricultural state of society, as a mere cursory reading of a study like Lynd's *Middletown* (3) will reveal.

But suppose we grant that the economic foundation and function of the family have disappeared. Does anyone want to see a return to a home where the wife and mother is a household slave, or a fellow-worker in the fields with her husband? There may be a few people like the Borsodis (4) who seek a return of the home as a self-sufficing economic unit, but they have in mind a home thoroughly mechanized, making use of every available household labor-saving machine. Such a home appears, at present, far from general acceptance.

A second important function which the family has performed in social evolution is that of the reproduction of the race. No attempt is made here to differentiate sharply between the interwoven problems of marriage and the family. When we speak of reproduction we are thinking of two things: the sex relation and, incidental to it, the production of offspring. In the whole of man's social development, marriage has had the effect of creating a form of union of the sexes which has operated to canalize and regulate that extremely powerful human urge, the sex drive. If we didn't have marriage, and the western world understands that to mean monogamic marriage, we should certainly have to invent or create an institution to regulate the relationship of the sexes and to keep within some limits the expression of the sex drive. To be sure, the institution we have has been far from perfect in this regard. The volume of extra-marital sex relationship is large, when we consider that reliable estimates place the number of venereally infected people as high as twenty per cent of the total population, most of which infection results from what society regards as illicit sex relations. But the larger question is not how inadequately has marriage canalized the sex drive, but how great would be the socially harmful effects of not having such an institution.

The second aspect of reproduction is the production of offspring. The human race is bi-sexual; offspring are the result of the relation between the sexes. Whether or not there is a biological basis for a so-called parental instinct, or whether it is the end product of habit growing out of association, the fact remains that there exists a tie between parents and offspring which is at the basis of the family. One might grant on

rational grounds that this means of reproduction is an extremely wasteful, even silly, method of continuing the race. But the hopes of science to simplify the process by artificial processes of fertilization of ova and the growth of the embryo in artificial media, with the possibility, according to Aldous Huxley, of producing 96 identical products at the same time—such hopes are about as chimerical in the present state of knowledge as the far better known, synthetically prepared foods which have been promised to us in convenient pellets.

But suppose again that we grant that the relation of the sexes and consequent reproduction of the race do not of necessity imply the existence of a family. A third service which the family has performed is that of being the primary group, to use Cooley's well-known phrase, in which the child gets his earliest education and socializing habits. In simpler societies this was an extremely important service. The tendency in modern societies has been to take these functions away from the home and family. At the beginning of our national history the home was the usual place for receiving the elementary instruction. The public school system as we know it today is an American achievement of the nineteenth century.

The age for beginning the institutional education of the young in our society has been steadily pushed downward. First came the college and the Latin or grammar school, to be followed by the universal acceptance of the idea of publicly supported compulsory elementary and secondary schools, then the kindergarten, and now the nursery school. Thus has much of the educational function together with the socializing function of the family been taken from the home.

As Frank has pointed out (5), hospitals and clinics and trained nurses are caring for the sick, recreation and leisure-time activities have moved from the home to social groups or commercialized enterprises, social and government schemes are providing for our protection against the proverbial rainy day, and in the religious sphere the intimate life of the family is losing its significance.

This is by no means a complete catalog of the functions which have been previously or are now associated with the family. One very important one has been the alliance between marriage and the family and property. We have passed the stage when woman was regarded as property; many European peoples still cling to the bride-price and the dowry. With us, the whole problem of inheritance of property and the property rights of women and children are tied up with the family.

Then there are other functions, such as the less tangible and concrete

ones as the affectional and romantic functions of marriage and the family, the gratification of one's vanity, the feeling that one belongs to an intimate group.

Margaret Mead, the authoress of that delightful book *Coming of Age in Samoa*, insists that the one universal function of the family is the status-giving, child-rearing function. This seems to be surviving even in the Western European family, despite the disappearance of its self-sufficiency and the taking over by the state of its disciplinary and educational functions. She also feels that "were state responsibility for children to be substituted for the present family organization, we would again obtain a type of guarantee for children which the present weak bilateral family fails to give" (6).

After such a lengthy analysis of the functions which the family has performed, it would seem as though the present American family had lost its chief reasons for existence. Yet people are still marrying and founding families. From 1890 to 1920 the percentage of the population fifteen years old and over that was married increased 4.6 per cent. In spite of all reasoning to the contrary to demonstrate that the functions of marriage and the family have one by one been stripped from it, people go on marrying and establishing families.

Accompanying this increase in the proportion of the population married has been another trend, namely, increase in the divorce rate or a growing number of family breakdowns. Our divorces are increasing three times faster than our population. Much has been made of the American divorce rate as compared with that of other nations. We feel ashamed of our record in this regard—and yet with a rapidly changing society, with increased rights for women, with the disappearance of the economic dependence of woman on man, with marriage a completely voluntary act, and above all with our complete and almost un-understandable, total disregard for education for marriage and family making—with these things in mind, we might have expected a rising divorce rate.

Failure has dogged our footsteps in attempts to solve this problem through more stringent divorce legislation. With the exception of states such as Nevada, Arkansas, and Idaho the general trend in state divorce legislation during the past generation has been not toward more lax divorce laws, as is popularly supposed, but toward more restrictive legislation. There are some who would enact a federal amendment unifying and standardizing our divergent state divorce laws. Yet the problem of divorce cannot and will not be solved by legislation. The hope for its solution lies not in the prohibition of the break-up of families

which have already broken up and merely await social sanction for the collapse—the hope lies in preventing the causes of the original breakdown. Perhaps one reason why we lead the world in divorce rates is that as individuals we are more ready to admit that our marriage has been a failure and to experiment anew. But always it is a blind experimentation. Through our educational system we provide very little guidance for marriage and family life. We would think a man an idiot who went on an Arctic expedition without making the most thorough and painstaking preparation possible by consulting all the charts, guides, and helps available. In the same way, we might brand as idiotic a society that allows its members to marry and establish families (a life expedition) without giving the slightest thought to preparation for the venture. The remarkable fact about this situation is not that many families break down in our present complex society—rather it is remarkable that so many succeed!

The creation of a family and the setting up of an harmonious home in our generation is a more difficult task than has ever been faced before by the human species. So long as the primary motive for marriage and the family was economic interdependence there was a bond that could not be broken except at considerable sacrifice to all concerned. So long as the family was the center of child education and nurture, the only recourse in case of illness or old age, the center of recreational activities, the home was necessarily more permanent.

But with many of these functions performed in other ways, what happens to the family? This is what can happen to the family, if we so choose—for the first time in the entire life of man on earth, there exists today an opportunity to make of the family that which has never been possible in any previous culture. It is possible to make of this institution an harmonious primary group, giving status to parents and children alike. If there is one fact that is self-evident to all students of human society, it is that man is by nature, or has become, a social being. Man can no more live without his fellows than he can without food and sustenance. "The Man without a Country" is a pure fiction of the imagination, for such a man is no longer a human being. Not only does the group mold the individual in every aspect of his personality so that in a very real sense man may be said to be a product of society, but also man depends upon his social groupings; he exalts his social bonds to the point where he is willing to sacrifice himself for the sake of the group. The family has been and may long continue to be one of the most important, if not the most important, socializing and status-giving agencies that

man in his development has been able to devise. What is to be said in answer to the arguments of those who say that some other group or institution can take the place of the family? Can the play group, the neighborhood group, the fraternal order or club, the state or the nation act in the capacity of pater to its members? Can they replace the intimate, face-to-face contacts that in the family take a non-moral, biological, non-social creature and begin the tedious process of transforming it into a moral, social, and spiritual human being? The whole weight of the experience of social workers, physicians, psychiatrists, juvenile and domestic relations court judges would seem to bear out the contention that a home, even though it be a foster one, is infinitely superior for the making of socially acceptable behavior than any institutional or larger group device that we have as yet tried out.

In the next place, we have an opportunity to make of the family an institution in which some of the finer qualities of life can be passed on to the children. Now, in our society with mechanical slaves to do our work, it is theoretically possible for us to divert more and more of our energies to the cultivation of what older civilizations than ours tell us are the products of mature cultures, namely, the stimulation of interest in the artistic and esthetic sides of life, the broadening and deepening of our intellects, the cultivation of a genuinely spiritual outlook as opposed to a crassly materialistic. For this function the home seems admirably adapted. Here is not merely the earliest and most important source of the child's social values—here the initial stamp is put upon his emerging personality. With the energies of parents increasingly freed for attention to their children, think of the possibilities of inculcating in the minds of the children an appreciation of some of these finer aspects of human life. What chance in a society where the main function of the family was an economic one, where the father and mother were engaged all day in slaving labor for self-maintenance, and where the children as soon as they were old enough joined the working procession—what chance in such an institution for the development of these higher qualities?

To be sure, such a conception of the family relationship requires an intelligent point of view, a higher order of forethought and preparation than was demanded in any previous society. Individuals cannot enter such a family without the requisite training. But where are they to get such training? Unfortunately, because we were blind to a changing society around us or believed that things would right themselves without any outside interference and simply held tenaciously to an institution because it was sanctioned by milleniums of tradition, we have not made

the adaptations that make possible such a family. We have not provided in our educational system, or anywhere else, for an adequate training for marriage and family life. But we are beginning to appreciate this lag, and we are making some attempts to face the problem.

Social work agencies are making some efforts to meet this problem by combining their knowledge of family problems with the expert advice of psychologists, psychiatrists, and social workers to assist in the program of education for marriage and the family. Motivated as their work is by the best intentions, most of their contacts with the situations come just before or after the crises in family relations have been reached, so that as a preventive measure it falls short. Birth control clinics, some eighty-five or more of them in all sections of the country, are contributing their share of advice and help in disseminating information concerning normal sex relations, problems of health and physical well-being, intelligent spacing of children. In some of our larger cities, clergymen with the help of professional workers are conducting pre-marital classes and giving invaluable help to those contemplating marriage in such problems as sex life, parent education, keeping a family budget. Parent education has made considerable strides both in and outside academic circles. Home economics departments in our colleges are facing the problem squarely and adjusting their curricula to the needs of young men and especially young women. Of course, mere theories will not do. What we need in this field is a competent body of knowledge to act as a guide. Just as every individual differs, so every attempt at setting up a home and family has its own peculiar problems. However, if we can get a sufficiently large body of knowledge on the basis of case studies and research we will be able to generalize effectively enough to reach conclusions that will be universally applicable.

Perhaps the Institute of Family Relations of Los Angeles has pointed the way in the short period of its existence. An organized attempt to provide guidance for marriage and family life, it has accumulated some very valuable data. On the basis of its work so far it has come to the tentative conclusion that the two greatest needs in education for marriage and the family are the sex and the economic problems. This would seem to bear out the contention that has frequently been made by judges of domestic relations courts and others that most marriages collapse on these two issues. To provide for education along these lines not only in our colleges but in our whole public school systems would then seem to be an imperative necessity if we are to rehabilitate the family and to refine its functions.

No, the family is not sacrosanct; it is a very human institution. No, the family is not about to disappear as a social grouping. But no one who looks at the matter realistically will deny that many of the functions previously associated with the family are no longer performed by it. This simply makes it possible for us to utilize this very valuable institution for the promotion of still higher and more socially valuable ends. But such a conception of the family demands, if it is to succeed, a type of education for marriage and family life which we have not as yet generally provided. Discussion of the subject will be fruitless unless we face squarely this ever-growing need for providing the necessary agencies for training and education leading to harmonious family life.

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SUGGESTIONS FOR THE IMPROVEMENT OF HOME ECONOMICS IN THE PUBLIC SCHOOLS IN RELATION TO BETTER LIVING[1]

JOHN TAYLOR WHEELER

THIS is a time to think, to re-examine our aims, to revalue our ambitions, and to rediscover our ideals in every field of education. Attempt to revalue programs in homemaking education should be made, however, only in light of the present situation and in accordance with an adequate philosophy of home economics. This discussion presents a consumer point of view for consideration in redirecting programs of homemaking education.

The consumer point of view looks at homemaking education not so much from the standpoint of subject matter to give content to the school curriculum, as from the standpoint of subject matter to give content to home life and home living. This point of view, reflecting as it does only the consumer outlook and placing the home not the school at the center of the picture, is important for an adequate philosophy of homemaking education and raises the question: What content is needed today in American home life or in the home life of any state, community, or family group? Suggestions here offered for improving home economics teaching in its relation to better living have grown out of this point of view and are limited to intra-family problems. They include a definition of home-life content, evidence of a need for giving attention to content in home life in America, a statement of a basis for understanding the present needs in home-life content, and suggestions for improving homemaking education in relation to intra-home living.

Defining the problem. "Home-life content" implies the environment of the home, the activities carried on in the home by members of the family as individuals and as a group, and the attitudes of the several family members toward each other and toward the home.

The environment furnishes the physical basis for home-life activities and to some extent conditions these activities. The house and its arrangement, the grounds, the books, the furnishings, the equipment, the tools, the pets make up the environment.

[1]Read before the Department of Elementary and Secondary Schools, American Home Economics Association, Atlanta, June 21, 1932.

What the family members do in or with the environment constitutes the activity aspect of home-life content. Is the house simply a place in which to eat and sleep or is it the center of living for all members of the family? Are the home grounds disused, tabooed, or employed for the self-expression of all members of the home group? Are the books procured to make full neat-looking shelves, or to meet the demands of growing personalities? Are the parents carrying all the responsibilities for maintaining the home, or are the children and parents working understandingly in a spirit of cooperation to maintain the grounds, the buildings, and the family car? Are the various members of the family group compelled to seek all their satisfying social contacts outside the home, or are there provisions for stimulating family group activities—plays, games, picnics, and special celebrations?

The attitudes of children toward one another, toward their parents, and toward the family and home as a whole, grow largely out of the emotional reactions—satisfactions and annoyances—that come directly but incidentally from the activities carried on in the home environment. The problem of controlling attitudes is complicated by the fact that the attitudes of parents toward each other, toward their children, and toward homemaking activities in general, may already be fixed by traditional patterns from the respective childhood experiences of each. Such patterns may be widely divergent at many points. Further than this, parents bring into the home from the outside attitudes toward people, ideas, and things which may furnish standards (ideals) for intra-home activities and determine resultant attitudes. Yet this consumer philosophy assumes that it is the function of homemaking education to control to socially desirable ends the home-life content in American homes, namely, its environment, activities, and attitudes.

The need for home-life content. It would be a waste of time to review in detail the vast changes that have taken place in American family life in the past century or to bemoan the passing of the old home industries. It is worth remembering, however, that the home life of former times offered opportunity for interesting, creative, and satisfying family activity and made provision for it in terms of space, materials, and tools. Without activity in the home, home life could not satisfy, then or now. The modern problem is to provide for such constructive satisfactions.

The industrial revolution is not some historic incident that has passed; it is still going on. The process of elimination of home activity continues. The preparation of food, the making of clothing, the laundering, and mending have now largely gone the way of the loom. To be sure, this

creates more time for leisure, but what kind of leisure? Leisure in the home or leisure away from the home? What control does home economics education exercise over home-activity content while industry continues to go out of the home? Should not home economists in re-examining their aims, plan to replace these older forms of activity with newer creative and satisfying ways of self-expression for the whole family and its various members?

Note the tendencies to take one's friends to the photo-drama to entertain them or to the hotel to feed them. Such entertaining was once the function of the home group. The radio "makes talk" which precludes the necessity for making interesting conversation and may tend to stultify even verbal self-expression as well as creative musical and dramatic self-expression in the home. The problem is not the elimination of modern methods of world contacts but the control of them to the end that better home life may result.

If all of the ways of self-expression and creative activity are removed from the home, what more logical step than to remove the children also? What are the trends here? Nursery schools, kindergartens, playgrounds, scout organizations, camps—all claim more and more of the activities of younger and younger children outside the home. All have their possibilities as excellent forms of creative activity, but should not home economists consider carefully where and by what agencies these activities are directed and controlled? If, with the aid of specialists, all these can profitably become a part of home-life content and the community-school programs, why continue longer the wastes due to institutional duplicity, administrative complicity, and consumer perplexity at this point? In this aspect of the consumer problem are found vital situations affecting home life and the education of children which challenge the best efforts of home economists.

Educators offer two reasons why such trends are sound; the children are better off under the tutelage of experts in these various institutions than under the care of parents who are not specialists or even trained in the rudiments of child care, and such institutional activities for children outside the home are necessary under conditions which exist in congested areas, where housing and other environmental home factors are bad.

To the first argument we can only say that education itself has failed here; parents can hardly be blamed for their ignorance about child care and training, when their educational opportunities do not include these things. The problem is that of adequate parenthood education vs. the multiplicity of new institutions for child training outside the home.

The second argument must likewise be met by an adequate philosophy of home economy. Should such philosophy condone bad housing conditions and home surroundings or should it reach out and strike at the foundations of the evil? From the point of view of the home, other economists have failed to grapple with this problem, and home economists will also fail if they do not attack the causes. It is no longer enough simply to provide relief measures. Home economists must accept the challenge for controlling the environment as well as the activity in home-life content.

Any analysis of the present situation from the consumer's point of view will show that in spite of all of the changes which have come to our home life and all the problems incident thereto, the fundamental functions of American homes have not changed one whit in the past century. This statement is true because the functions of the home grow out of deep-seated biological needs that change very slowly or do not change at all. We may assume also that the functions of the home will not change appreciably in the future because of these same biological facts.

The consumer's point of view recognizes in these biological needs parent needs, children needs, and family group needs which include both parents and children. This analysis indicates that home economics education should bring into the home content to meet the needs of parents, content to meet the needs of children, and content to meet the needs of the family group.

Providing home-life content to meet the needs of parents involves problems of the first magnitude because home life is what the parents make it and what the parents provide in the way of environment, activities, and attitude makes the home. In other words, parents are the most important things that homes give to children. Home economists may well keep this important truth before them as they revalue their programs of homemaking education and provide content related to the special needs of the man and the woman as separate personalities, content involving relationships of parents to each other, and content dealing with relationships between parents and children. While the programs of homemaking education now include beginnings in the development of all three of these aspects, emphasis is largely on the last, the care of children. Do not the other aspects of homemaking education for parents need greater emphasis? We have the American Child Study Association; why not also an American Parent Study Association? Too much attention is not given to the child, but too little is given to parents as individuals and as partners in the great enterprise of homemaking.

Home economics education is attempting at present to do more for women than for men, and much that is now being attempted for women in the fields of foods, clothing, child care, and home management is being negated by a lack of training for men.

Combinations of the two sexes, it is needless to say, prevail in the 23,000,000 homes of this country in which are the potential consumers of the products of homemaking education. Full cognizance of this fact must be taken if home economics is to function effectively in producing better living in American homes. The adverse criticism of "male domination in the home" and of the "male superiority complex" is entirely beside the point in establishing a program of home economics that will bring about a better home life. In revising the objectives for homemaking education there is need for a comprehensive program that will include men. They are ignorant. Be charitable. Educate them in the way they should go.

Education can solve this problem; nothing else can. How can home economists hope to find better living and more democracy in the homes of the future when the average home consumer is not sure whether the philosophy of homemaking education includes or excludes the man? Children's needs are the first concern of the home itself, and always will be; yet parent needs are placed first in this discussion both to emphasize them and to show their relations to success in all other aspects of the problem.

Home economics education has done and is doing much to solve the problems of feeding and clothing the family, caring for the children, and managing the home. The nursery schools, as experimental laboratories, have made outstanding contributions in understanding the nature and kind of activities that are essential to satisfying self-expression of children. The nursery school as a laboratory for studying the reactions of children under controlled conditions no doubt will continue to contribute much to the better understanding of the needs of children in the home. It is necessary, however, for home economists to go further than to indicate what kinds and amounts of foods and clothing and shelter and activities are essential to the welfare of children. They must grapple with the conditions that make it possible or impossible for parents to provide these necessities.

The needs for home-life content for the family group. The conception of the home as the place where children and parents live together is an important consideration from the standpoint of the consumer and the state. In this family group are found the beginnings of true democracy. Nearly

three thousand years ago Lycurgus of old Sparta said to those who urged upon that ancient city-state a democratic form of government, "Pray do you first set up a democracy in your own house."

The intimate relations of the family group have great possibilities for the development of both parents and children. Children in the home give something to parents—to men and women—that cannot be gotten otherwise. Parents can and do give to their children more than any other teachers may ever give: attitudes towards institutions, neighbors, races, truthfulness, domination of others; habits of friendliness, suspicion, tolerance, thrift; language habits; and hundreds of others that go to make up what we call personality characteristics and citizenship attributes.

What is there in the program of homemaking education to give meaning and richness to home-life content for the family group? What activity content is being projected into (not outside of) the home that will make for better understanding, sympathy, and democracy within the family group? Those who believe with Lycurgus of old that democracy in the community, in the state, in the nation is possible only when there is democracy in the homes have in their hands the reformation of a nation.

Suggestions for improving home economics teaching. Out of the foregoing analysis come these suggestions for the improvement of home economics in the public school in relation to better living.

In home planning provide space and equipment both indoors and out for appropriate home-life activities for children, parents, and the family.

Recognize the fact that the industrial revolution is still going on and that home-life content is still in a condition of flux and change. There is need of a coordinated educational program to restore order and keep home-life content from being swallowed up by a multiplicity of overlapping institutions outside of the home and the school.

Meet more fully and adequately the needs of parents (particularly the father) in programs of homemaking education, to the end that present and prospective parents may receive richer and more satisfying home-life experiences. Bring back to home-life content opportunities for self-expression and satisfying activities for parents as individuals and as partners in the enterprise of homemaking.

While continuing to deal with the fundamental problems of food, shelter, clothing, child care, and home financing, project homemaking programs beyond these and deal first hand with the larger economic problems so that all parents may meet the fundamental needs of their children and their homes and so that homemaking education may function in bringing richness to home-life content and democracy to the state and nation.

HOMEMAKING IN THE CONTINUATION SCHOOL

MABLE RAE PASHLEY

THE needs of continuation school pupils are probably more varied than those of any other school group because they include all the interests and problems of the adolescent plus some of the problems of adults. A large number of these pupils have not acquired skill in the use of common school subjects, standards of conduct essential for success in the business and social world, or attitudes which will help them to get along well with their fellows. They know little of vocational opportunities and so are prone to sacrifice the future to present financial returns. They know little of how to care for their health or how to manage the income they earn and understand little of the complexities of married life, which comes early to many of them. Most of the girls are interested in whatever pertains to homemaking, especially in anything which they themselves can create. They are also keenly interested in people, possibly because of the solitary nature of much of their employment and the barrenness of much of their home life. Movies, cheap literature, and dances are their chief diversions.

In a continuation school class in Rochester, New York, the number of pupils may vary from five to twenty-five, ranging in age from fourteen to seventeen. Attendance is required once a week for four consecutive hours, and this time is divided equally between a vocational subject and related work in English, mathematics, hygiene, and civics. Pupils may enter any day and leave the class whenever they have reached the required age limit. The average pupil stays from one to two years, and this time may be devoted to one vocational field or to several.

The unit described below is one of five recently developed for an advanced homemaking course which deals with problems of the family and which is taught in the school apartment. It presupposes some general home economics training; but since girls come to the continuation school from parochial as well as public schools and from grades ranging from the fifth to the twelfth, some have had several semesters of home economics and some none at all. Those of fourteen or fifteen who come without home economics training are placed in a beginning home economics or

personal improvement course to study personal problems and gain some knowledge of food and clothing selection and preparation. The girls of sixteen or over are allowed to take the advanced course if they so desire. Usually, these girls have had junior high school home economics. Some have had practically no homemaking experience; others are engaged in caring for the family home while the mother works; and still others are working in someone else's home.

The results hoped for from the course are an understanding of the factors that contribute to ideal home and family life, an interest in children and some ability in caring for their needs, some skill in common household tasks, an understanding of the interrelationships of the home and community, a sense of the need for preserving the mental and physical health of the family, some appreciation of homemaking as a profession, an understanding of the need for training for it, and some knowledge of the various sources of information and judgment in evaluating them. Eight or ten lessons (20 hours) are devoted to study of the use of the income in order to arouse the girls' interest and sense of responsibility for the financial problem of the family and to help her to use money to its best advantage, including personal and family budgeting and the wise use of savings.

In such a complex situation no one method of teaching is wholly adequate, but the Morrison plan, with some modifications, seemed to provide an adequate general framework for instruction on different levels of ability and to allow for entering students to be absorbed into the class at any time.

Whether or not the plan will serve the desired purpose, it is still too early to say, but perhaps this account of its theoretical administration may be suggestive to others.

The pre-test, which is intended primarily to disclose whether the pupil already has a mastery of the material in the unit and if not to make her aware that there is much to be gained from the study, was given only to those whose previous experience was not known to the teacher; and it was made clear to the students that they need not feel embarrassed if they failed to give correct responses. The form of the pre-test is shown by the following:

Each of these sentences is incomplete. Finish out each one in your own words:

The first items a family must pay for out of its income are . . . .

Families or individuals are unable to tell what they are doing with their money unless they . . . .

The less the income, the greater the proportion which must be spent for . . . .

In giving the presentation or overview the teacher told appropriate stories and gave examples of real situations to stimulate interest. The personnel of the class determined to some extent the nature of this simple presentation, and since the unit was not the first in the course, "forward connections" in previous lessons helped to introduce it. In fact such connections could easily be made to take the place of the usual presentation. Accounts kept several weeks before this unit began provided something to build upon within the experiences of the class members.

The test, intended to determine whether the pupils had grasped the general idea of the unit or knew what it was to deal with, was given only to the most doubtful cases lest too much interrogation at the start might tend to break down rather than create interest. The following suggests the type questions used for this test:

There are three answers suggested below for each question. Choose the one which you think is correct:

The family that is financially successful is the one
- a. whose income covers all the expenses and leaves some for saving
- b. whose income just pays the bills
- c. which does not quite make the income cover the expenses

The family that is happiest is the one
- a. in which all of the members share in planning how the money shall be spent and in spending the income
- b. in which the father says how the money shall be spent
- c. in which the mother plans how the money shall be spent

During the period of assimilation the students were expected to gain a broad view of the whole unit by reading, using illustrative material, performing laboratory exercises, joining field trips, and entering into class discussion. Guide sheets directed the pupils' thinking so that each was able to proceed at her own rate of speed. Graded guide sheets were avoided lest through them the slow learner would be studying different material from that under discussion and become confused. However, the references used for study were graded, the easier being given first, and as large a body of illustrative material as possible was provided so that the more rapid learners could cover the ground more thoroughly.

Certain members of the class were chosen to make special reports on aspects of the unit of interest to them for which special data and illustrative materials could be collected. Pupils entering the class during the unit were given personal help with the first part and urged to catch up with the rest of the class if possible.

The first and longer part of the two-hour class periods was used for individual work and the latter part for a discussion of the problem being

studied. Students for whom this study period was more than sufficient were given other projects related to the unit or suitable outside projects, for example, the management of special luncheons or teas.

Such inductive problems and guiding questions as are suggested by the following made up the guide sheet:

Problem I. Harriet is a stenographer earning $18 a week. Her home is in the country so she has to room in the city. How much can Harriet afford to pay for clothes if she considers the usual expenses of a girl and other expenses sometimes necessary; whether she should save money on the small salary earned, and if so how much; where and for how much she can find room and board; how she can divide the money left each week after her room and board are paid so that she will have enough for all other expenses; how much she can allow for recreation. Furthermore, on the amount allotted for clothing and accessories can she be comfortably, luxuriously, or poorly dressed and could she have two dresses for one if she could make them herself? Finally, considering all her expenses, how do you think she can best plan for them?

Problem II. Mary Henry is interested in the financial problem of her family, with whom she lives. She earns $12 a week. There are four other children: a baby of 2 years and Henry 12, Betty 8, Sarah 6, all in school. The father, a carpenter, earns $40 a week and Mary gives the family $6, totaling $46 which can be spent each week for family needs. They rent a six-room house for which they pay $35 a month and own a Ford sedan whose purchase used up all their savings. What plan for spending their money seems most satisfactory if they consider the items for which they should spend their income, the least amount they can safely spend for food, the cost of operating the home, clothing the family, buying gasoline for the car and keeping it in repair, and the amount they will spend for recreation and gifts? Should the children be allowed money to spend for themselves? How do you think Mr. and Mrs. Henry can divide their income so as to get the most value from their money? Can they increase their income in any way?

Examples of other problems developed through similar questions were:

What kind of a plan should Mrs. Henry have for spending her food allowance? What kind of a plan should Mrs. Henry have for spending the clothing allowance? What kind of a plan should Mrs. Henry have for running the home economically? In what form will the savings be kept? What kind of recreation is this family going to have? Is Mary's contribution to her family sufficient or not sufficient?

Simple judgment problem. Two girls who left school last year are now each earning $60 a month. The first girl spends $360 for her room and board, $40 for laundry, $200 for clothing, $60 for a vacation, $30 for presents and incidentals. She has $30 left at the end of the year. The second girl has the same amount of money, spends $360 for board, $200 for clothing, $40 for a vacation, $20 for presents and has $100 left at the end of the year. Which girl has been the better spender and why?

More complex judgment problem. Ellen is the second of a family of five children. Her older sister goes to high school and Ellen very much wants to go also but the family does not see how they can afford to keep two girls in high school unless they sell the car and give up some other things. What had they better do?

Simple creative problem. What kind of a budget should you have?

More complex creative problem. Plan a budget for the following family: father, a mason, earns $50 a week; mother at home does all household work, including laundry work for all; oldest son, 18, earns $20 a week and lives at home; Mary, 16, earns $15; Sam, 12, goes to junior high school. Susan and Sally, twins, are 8 and go to school. Decide what is a fair allowance for Henry and Mary to give the family for their room and board.

During the organization each student summarized the ideas and organized them for her own use, this without books, notes, or charts with attention focused on central thought, not details. The teacher assisted the pupils in formulating their ideas, but each student presented in written form her own plan. These were reworked in the related English class and showed wide ranges of ability and progress.

In the recitation, different topics related to the unit were presented through oral reports and demonstrations by pupils who had been detailed previously to special study. Some group projects were also reported and discussed. To create a natural, friendly situation conducive to an exchange of ideas and changed practices, students were urged to bring in such illustrative material as a dress they had always liked and that had worn well, a coat that was a particularly good purchase, or a favorite inexpensive recipe of the family's.

THE HISTORY OF EVAPORATED MILK

MARIETTA EICHELBERGER

A SKETCH of the origins of a widely used food often furnishes useful teaching suggestions, especially if it shows close connections with such other school subjects as geography, economics, sociology, and the natural sciences. In the case of evaporated milk, it is suggested that a possible classroom approach may be found in considering its processing and storage in tin as a skillful adaptation of a food supply to the needs of industrial civilization and a significant step toward optimum nutrition.

Why was it such a stroke of genius for a young Swiss, John Meyenberg, to file in St. Louis on November 25, 1884, an application for "letters patent" on "a process of preserving milk"? The developments in the things that have happened in America in the fifty years since that date have obscured the fascinating story of the contribution made by him and his predecessors to a successful milk preservation process.

Meyenberg was by no means the first to claim a solution to this problem. Credit is chiefly due him for a method of turning the tins of milk in a sterilizer so that the contents would be heated evenly. The real father of all modern canning was Nicholas Appert, a Frenchman, who, in 1810, arrived through experimentation at a way of keeping food for long periods by air-tight sealing and sterilizing by heat.

Up to the time of Appert, little had been done beyond allowing lactic acid bacilli to run their course in milk and produce cheese. Scientists were convinced that it was "natural" for all food to spoil and that nothing could be done to stay that eventuality. Appert knew nothing, of course, about bacteria, and his achievement seems therefore all the more remarkable. He observed that food cooked and sealed would remain in good condition. By trial and error he discovered the length of heating required and proper methods for nearly all the animal and plant foods, including milk, then available in France. In 1809, he was awarded a government prize of twelve thousand francs in recognition of his efforts, and his processes were perfected the following year.

Appert evaporated milk to one-third its original bulk. The reduction of necessity was done in an open kettle, and one can readily understand

that because of the prolonged heating, a strong, cooked flavor resulted, so that the product was not acceptable for general use although it might be satisfactory for some cooking. Naturally Appert was unaware of the effect on certain vitamins of the combination of heat and free access to air; and the trouble he experienced with fat separation is solved in the modern plant by homogenization, a process which breaks the fat into minute particles and distributes them throughout the fluid so that they remain in permanent suspension.

Contemporaries of Appert in both France and England experimented in milk preservation by evaporation and the addition of sugar. The early French and English patents obtained for such purposes were the forerunners of the sweetened condensed milk we know today. In 1813 a patent was obtained in England for a "vacuum pan," now a most important piece of apparatus in the evaporated milk process. In such pans, according to modern methods, milk boils vigorously at 130°F., half of the water being removed without destruction of the important milk vitamins or any other undesirable effects. It was in England in 1835 that a vacuum pan was used for the first time in connection with milk evaporation.

The processed milks made available by Appert and others were of significance mainly to armies and navies and the shipping industry. Nutrition deficiency diseases were the curse of the high seas, and the balanced diet made possible for the first time by these preserved foods that retained their original nutritive value was vastly beneficial.

In the United States an attempt was made in 1828 to preserve milk with sugar and bottle it, but the venture was of no commercial importance, significant only as showing that experimentation was being done on both sides of the Atlantic. From 1800 to 1850 there was a groping after the principles of concentration and preservation, but it remained for the next half century to discover and apply them widely.

By the time of the Civil War, sweetened condensed milk plants were operating in several eastern states, and the conflict created an immediate demand for the product. This made the business pay and led to the first profitable enterprise in concentrated milk anywhere in the world, despite the fact that experimentation had started in Europe. The process itself was improved by an appreciation for absolute cleanliness of the milk, its quick handling from farm to plant, and the proper control of temperatures in evaporating and cooling. No special improvements were made in apparatus.

At the close of the Civil War, the story of sweetened condensed milk

success was carried to Switzerland by Americans, and the first European plant was shortly established there. The man in charge of the processing and packing was John Meyenberg. He became interested in developing a satisfactory method eliminating the use of sugar, a return to Appert's idea. Meyenberg must have come to the conclusion, since substantiated, that the evaporated, sterilized product from which only water has been removed and nothing added, is the most convenient for the largest number of purposes.

Meyenberg brought his unsweetened evaporated milk idea to the United States. At Highland, Illinois, in 1884, he met a group of dairy farmers of his own nationality whose help enabled him to start an evaporating plant. Thus the commercially successful concentration of milk had passed from this country to Europe and back again, with the sugar having dropped out on the way.

At first the market was mostly in mining camps and other remote regions where other forms of milk were scarce or lacking. Plant equipment was improved, and evaporated milk gradually came into its own but achieved only a fair success until the Spanish-American War, when the government required all that could be produced. That was the beginning of an amazing mass production. Meyenberg's experimentation on processes had been done just long enough before to enable evaporated milk to make the most of the opportunity. Use of evaporated milk during the Spanish-American War focused attention on it as a way to meet a need in the new congested industrial cities. Moreover, the year in which Meyenberg had secured his patent was the middle of a decade when the country gained twelve million in population. New rail lines were opening up a great cattle country still sprinkled with Indian feathers and marked by buffalo hoofs; cotton mills were springing up in the South where water power was cheap; western farming was causing the gradual abandonment of inferior New England land; and cities were developing in which people were packed close together without ready access to farms and dairy products. At the same time, the industrial giant demanded a safe, economical milk in line with individual earning power and public health standards.

The original plant and others that had rather cautiously begun operation found themselves growing into great corporations. More concerns came into the picture. Various striking demonstrations were made to show that evaporated milk would stand shipping and that the fat would not be separated from the non-fatty solids. A number of cases of evaporated milk were placed on a sailing vessel bound for Japan; these

cases were returned to the United States seven months later aboard another vessel, and examination showed the milk to be smooth and sweet and in good condition. Equally conclusive evidence was offered in 1929, when several cases of evaporated milk which had been distributed to San Francisco earthquake and fire victims in 1906 were opened and found perfect although twenty-three years old.

The evaporated milk industry soon began to employ specialists who worked with dairymen in an effort to educate the latter to the better care of cows and better handling of the milk. A government standard for evaporated milk was established. Prize bulls were sent from plant-owned herds to enable dairymen to breed herds which would yield a greater flow of milk from a given number of animals. By 1914 evaporated milk had so come into favor that ten million cases, nearly five hundred million tins, were that year produced in the United States.

Even that was insignificant compared to what happened during the World War. Millions upon millions of pounds of evaporated milk went from America to the allied armies, and millions more to the civilian population of England, France, and Belgium. Most of the cattle of warring Europe were either killed or inadequately fed; so after the Armistice, great quantities of evaporated milk continued to go to those countries, as well as to Germany and Austria.

Since the World War, extensive research has been undertaken at leading universities and laboratories on the nutritive value and sterility of evaporated milk. Among the conclusions reached by the investigators were these:

Evaporated milk is pure fresh cow's milk with approximately sixty per cent of the water removed by evaporation under reduced pressure. It is equal to pasteurized milk in all important food values; it supplies those vitamins which milk can be depended on to supply and in practically equal quantity. Evaporated milk casein curd in the stomach has a finer granular and softer texture or structure than that produced from raw or pasteurized milk; it resembles in physical structure the curd of human milk.

The fat of evaporated milk, because of the homogenization processing, is more finely dispersed than the fat of ordinary milk and therefore is more readily acted on by digestive enzymes. It is sterile and therefore safe; and it is usually less allergic than raw or pasteurized milk.

It was considered "staggering" that 280,000,000 pounds of unsweetened evaporated milk were produced in the United States in 1909, an increase of 154 per cent over the figures of the previous census. In 1931,

1,380,000,000 pounds were consumed, approximately a fourth of all food packed in tin.

The economic distress that grips the country at present gives the latest proof of the utility of a low-cost milk. The availability of evaporated milk means that many strained welfare budgets can provide adequate milk for relief cases, despite the fact that the number of these has in some instances tripled. Furthermore, the families receiving relief are better able to use milk in tin than in other form, both for reasons of economy and for lack of refrigeration. Many such families are consuming a better balance of foods, including milk, at a cost considerably less than before they received assistance. This could not have happened without the tin container and what it implies for economical storage and distribution.

Looking backward over the history of milk preservation, we find that the armies, navies, and shipping industry of Appert's time, the military and naval forces of the Civil, Spanish-American, and World Wars, and the great industrial cities of our day have all had the same problem. Safe milk has been imperatively needed in quantities that the surrounding land could not provide and in a form in which it could be stored and transported without spoilage and at the lowest cost for transportation from cow to consumer.

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SIGNS OF THE TIMES

AN EXPERIMENT IN TEACHING CHILD CARE. The child care lessons in the home economics classes of Upshur County High School at Buckhannon, West Virginia, were formerly textbook lessons; class discussion and reports on infant feeding, sleep, exercise, schedules, and training; and one or two demonstrations of bathing and dressing an infant borrowed for the occasion. The girls never became particularly enthusiastic over the work when so presented; yet the plan might have been used again but for the fact that this year there was not an available baby in the neighborhood. It seemed best, therefore, to borrow a child from an orphanage and keep him at school for several weeks.

With this plan in mind, the study of infant feeding became an important unit in considering family meal planning. This in turn led to a study of infant schedules, and so into all phases of child care and training. The girls brought in outside material and ordered bulletins and booklets on child care. As a preliminary, school schedules were slightly modified for one month so that some one girl could be scheduled to be in the laboratory each period of each day. The schedules also showed on which day during the regular home economics class period each girl would be responsible for bathing and dressing the baby and giving him his cod-liver oil and orange juice. The teacher was scheduled to take care of him from four o'clock each evening until eight-thirty the following morning. Preparations also included the renovation of a borrowed baby carriage, purchase of necessary bath and laundry supplies and equipment, and rearrangement of the laboratory to better suit its new rôle of nursery.

On Saturday, November 27, references from local doctors, bankers, and merchants were exchanged with the superintendent of an orphanage in Charleston for the baby, and the superintendent of the home was helpful in supplying clothing and bottles. Charles made his first trip to school on the following Monday, where he was met at the door by half of the student body to whom he gave a charming smile and thereby became the most popular boy in school. The greatest difficulty was to protect him from too many callers.

During the following month the class was divided into two sections which alternately did the baby's laundry and carried on the regular

classroom work. Since the duties of the groups alternated, each lesson had to be repeated, but by carrying two units at once the work was kept up to schedule.

When Charles came to us he was on a diet of lactose milk, was suffering from a slight digestive disturbance, and showed signs of rickets. He was seven months old, weighed fifteen pounds, had no teeth, could not sit up alone, and did not know how to reach for or play with toys. At the end of his month as demonstration baby, he weighed eighteen pounds, had round, rosy cheeks, could play with a ring or a rattle, hold his own bottle, sit alone for a short period, was trying to imitate sounds, and his two lower incisors were almost erupted. There had been changes in his diet to include cod-liver oil, orange juice, strained spinach, carrots, green beans, tomatoes, vegetable broth, dry toast, and modified cow's milk.

Before the first week of his stay was over the girls were beginning to worry about having to send him back to the Home. Soon they began to beg their parents to adopt him, which is just what a childless couple in town did, to the joy of all concerned. His school mothers visit him frequently and are much concerned about his development. The new mother bought material for his spring wardrobe, which was made by the home economics class in connection with their work in clothing for children.

The unit of work was successful, thanks to careful, intelligent planning and care of the baby on the part of the teacher and class members and united interest on the part of the local board of education, teachers, and school patrons. On first analysis it might seem that the baby was exploited, but closer study of the situation shows that the project was so well managed that his habits of living were not disturbed, and his response to the new situation indicated that his adjustment was made without resulting nervous strain.

The girls learned that food, regularity, cleanliness, rest, and lack of handling are paramount factors in keeping a baby well and happy. They became skilled in bathing and dressing a small baby, and in choosing, preparing, and caring for his food. Even laundry lessons proved interesting because the work was done for Charles. Above all else, each girl learned to love and understand babies better and determined to help as many as possible to receive proper food, to acquire good habits, and to grow up without unnecessary handling or excitement. In fact, the entire county became so much interested in the project that everyone was anxious to see and to hear about the "school baby."—VIRGINIA BROWN.

A PLAN FOR ASSISTANT TEACHING IN HOME ECONOMICS. It is the general opinion among teacher trainers that the student teacher should assume the responsibility of teaching gradually. It is felt that if she begins with minor duties and undertakes more difficult problems each day until full responsibility of teaching the class is assumed, her teaching will be more successful.

Various committees in working on student teaching problems have recommended that the student teacher be given the type of duties in assistant teaching which will not only enable her to become familiar with class routine, but will also help her to develop self-confidence and the confidence and respect of the class she is to teach. In making a plan for assistant teaching in home economics at Mississippi State College for Women, activities to obtain the above goals were listed under the following types of assistance:

1. To help student teacher become familiar with class organization and management
2. To help student teacher with the organization of subject matter into teaching units and lessons
3. To help student teacher discover pupil difficulties
4. To help student teacher develop an ability to stand before the class and talk to the group in a clear and direct manner
5. To help student teacher become acquainted with home conditions of girls

Because many of the activities necessary in teaching home economics vary with the unit being taught, it is not possible to set up one list of assistant teaching duties which will be desirable for all units. In the lists given beyond several activities are suggested in each group which might be used in any unit. Of course, some of the responsibilities listed are more difficult than others, but they have not been set up in the order of difficulty, nor have lessons within a unit been graded as to difficulty; but certainly it will be easier for the student teacher to take the responsibilities gradually even though the suggestions given here as to relative difficulty may be incorrect. It is suggested that those marked with asterisks might be the least difficult for students to assume first.

I. Assistance in becoming familiar with class organization and management
   - *1. Learn names of students
   - *2. Learn regulations of school relative to absence from class, tardiness to class, grading, records, and reports
   - *3. Keep attendance records of class
   - *4. Provide as nearly as possible proper physical conditions in room with regard to light, temperature, and ventilation

*5. Learn the order and arrangement of supplies and equipment kept in store room, the staple supplies kept on hand, and how to place orders for supplies
6. Order supplies for class
*7. Observe the method used by the class for housekeeping duties
8. Work out a check list to assist girls in establishing or building worth-while standards for themselves in the laboratory
9. Work out a plan whereby the teacher may check herself on the pupils' habits of orderliness and cleanliness
10. Make a time budget for a laboratory lesson
11. List the things students do at beginning of period in getting started to work which show wise use of time, time wasted
12. Summarize the monthly expense account of the class and note whether or not the expenditure is within per capita allowance
13. Write letters of acknowledgment to publishing houses and other firms that have contributed to the department

II. Assistance in organizing subject matter into teaching units and lessons
*1. Prepare a few assignments and problems to be given pupils
2. Think through the lesson with the critic teacher as she makes her plan
3. Collect illustrative material for some of the lessons
4. Assist in keeping a live, interesting bulletin board
*5. Look up references needed by students for certain lessons
6. Work out a study sheet for some particular problem
7. Give supplementary instruction to students who have been absent
8. Plan tests for class that will bring in problems of judgment and reasoning
9. Correct test papers
10. Write out the best application of the lesson made in class to some outside problem
11. Work up an interesting presentation for the next unit to be introduced
12. Prepare demonstration material

III. Assistance in discovering pupil difficulties
*1. Learn to know more of students' habits and standards of work by helping with such extra-curricular activities as: serving afternoon tea for mothers or friends, assisting with activities of home economics club, or directing a demonstration at high school assembly
2. Rank pupils in a laboratory class with regard to some particular personal attitude which affects progress in school
3. Make attention profile of students. (Use "Chicago Sustained Application Profile Sheet")
4. Check evidences of purposeful activity on the part of some particular student during a class hour. Use questions which should be answered by citing specific instances
5. Hold conference with pupil
6. Study one or two pupils in detail and note waste motions in laboratory work

IV. Assistance in developing ability to stand before the class and talk to the group in a clear, direct manner
- *1. Give brief demonstration to small groups during laboratory period
- 2. Give a short demonstration before the entire class
- 3. See that class comes to order and make any announcements relative to supplies or equipment that may be necessary
- 4. Comment on written papers about to be given back to students
- 5. Take charge of the discussion relative to the judging of products
- 6. Make a brief "floor talk" about some interesting related phase of the unit on which the students are engaged
- 7. Conduct a drill or review
- *8. Assist with high school home economics club program, if invited
- 9. Present an assignment problem

V. Assistance in becoming acquainted with home conditions of girls
- *1. Accompany regular home economics high school teacher on visits to girls' homes
- 2. Visit home project work
- *3. Assist in arranging home economics exhibits at community fair
- 4. Direct class in carrying out a project outside of the regular home economics program

—MARY WILSON.

WASHING MACHINES IN ILLINOIS HOMES. Four types of tests are made in studying the efficient performance of washing machines for domestic use—those by manufacturers, those by university and college research laboratories, those by household institutes connected with a few daily and monthly home periodicals, and those by the consumer at home over a period of years.

The present study is concerned with the last type, practical tests by homemakers doing their own laundry work at home. Its purpose was to investigate some of the problems connected with washing machines used in homes, such as the method of purchase, cost, type, and the use made of washing machines, taking into account the satisfaction or defects as shown in actual home service.

The data were obtained from a total of 902 questionnaires answered by 807 rural and 95 urban homemakers from eight counties in Illinois. Of the eight counties, three are in the northern part of the state and adjacent to or in the center of urban life. The other five counties, situated in the east and west central section, are more distinctly rural. The fact that in one county the questionnaire was answered by a group of 34 local leaders probably accounts for the relatively high proportion (84.8

per cent) of women reporting gasoline and electric washing machines. Since the number of questionnaires obtained from women in urban centers is much smaller than that obtained from rural women, the figures shown for urban districts may be taken to indicate a trend rather than as definitely comparable with those from rural regions.

The findings of the study may be briefly summarized as follows:

Of the 773 homemakers who reported having a washing machine, 693 women or 89.6 per cent lived in rural districts and 80 women or 10.4 per cent came from urban centers.

Hand machines were used by 113 rural women or 14.6 per cent and by only one urban woman or 0.1 per cent.

Gasoline washing machines were used by 211 rural women or 27.3 per cent, while only one urban homemaker or 0.1 per cent reported having one.

Electric machines were reported by 447 or 58.5 per cent, of whom 369 or 47.7 per cent were rural and 78 or 10.8 per cent urban women.

Of the eight counties, Rock Island reported the highest proportion (84.2 per cent) of rural homes equipped with electric machines, while Jersey had the highest number of women (36.4 per cent) reporting gasoline machines in use.

Five hundred and seventy-nine or 87.3 per cent of the rural homemakers paid cash, and 84 or 12.7 per cent bought their machines on installment. Of the 77 urban women who answered this question, 59 or 76.6 per cent paid cash and 18 or 23.4 per cent bought on installment.

A larger number and percentage of rural women—148 or 25.4 per cent—paid less than $50 for their washing machine as compared with seven urban women (9.7 per cent) who paid this sum. One hundred and eighty-six rural women (31.8 per cent) and 32 urban women (44.4 per cent) paid from $50 to $100 for their machine. Two hundred and fifty rural women (42.8 per cent) paid $100 and over for this labor-saving device and 33 urban women (45.9 per cent) paid this sum.

There were 105 different brands of washing machines listed. The seven nationally advertised machines among them accounted for over one-half of the total number of all machines reported. The period of service for the machines ranged from two weeks for a new electric one to 35 years for a hand machine.

The five types of defects most frequently mentioned by the women were poor wringers, poor drainage, poor dolly, too little strength in the engine, and difficulty in cleansing thoroughly. In addition, many other minor defects were also listed. It would appear that manufacturers

should improve the construction of washing machines or inform women as to the proper care in using them or both.

The study also shows that the laundry work in families with young children presents a special problem. There were 162 families who reported a total of 314 children of whom 194 or 61.8 per cent were under five years, 22 were less than one year of age, and 33 between one and two years. In other words, 28.4 per cent of the children were less than two years old, and 71.6 per cent were between two and five years of age. The "wash-time load" in such homes is significant in this connection. One homemaker with two young children aged, respectively, two months and two years spent ten hours a week washing even though she had an electric machine. Two other women with young children under five years of age spent as much as 12 hours a week.

In the rural county in which there was the largest average number of children in the families reporting (over 3 children per family) 36 families reported 44 children under five years of age, and in 10 of these the homemaker was using a washboard.—GLADYS J. WARD and LOUISE YOUNG.

HOW THE UNIVERSITY OF CINCINNATI HELPS WITH COMMUNITY NUTRITION PROBLEMS. A vital interest and an active participation in community problems related to family life have always been a very important part of the program in the School of Household Administration at the University of Cincinnati. Not only do these problems afford a means of service to the public, but the outside contacts give a splendid opportunity for the students to develop responsibility, resourcefulness, initiative, and cooperation, to create an interest in social service, and often to discover their own interests and abilities.

As a matter of course, the depression has brought a great increase in the number and kinds of food and nutrition problems. The nutrition department tries to help solve these by individual work of the staff and alumnae and by using the problems as a part of regular class work. A number of graduates have enrolled for volunteer service with the American Red Cross and they have given demonstrations, taught classes, and planned special diets. A brief description of a few of the students' projects may perhaps be suggestive to other schools in their programs for next year.

One of the projects which had a widespread influence was a series of wheat demonstrations conducted by the University and the home eco-

nomics departments of the public schools. When it was found that the local Red Cross chapter was to distribute many carloads of wheat in the county, the nutrition committee of that organization felt it would be a calamity if all the wheat were made into white flour and other refined products. At the same time they realized it would be necessary to teach the people the use and food value of the wheat in other forms.

Miss Charlotte Ullrich, city supervisor of home economics, and the writer, both members of this committee, arranged a concentrated educational program. Recipes using cracked wheat (most of them from the United States Bureau of Home Economics) were tried out and adapted to local conditions by a University nutrition class. Then a meal featuring cracked wheat dishes was served to a group of seventy social workers representing different agencies.

During the following week, demonstrations were given by home economics teachers and their pupils in the laboratories of ten schools in districts where dependent families live. Case workers of the welfare organizations were responsible for the attendance of their clients. Over three hundred women were present at the school demonstrations and one hundred more attended two other demonstrations given at welfare centers. Each woman was given two pounds of whole wheat flour, two pounds of cracked wheat, and a sheet of simple, inexpensive recipes. A large number of other families was reached through the pupils in the classes which prepared the food.

Requests for low-cost menus have come from many sources—school lunch rooms, individuals, women's clubs, and welfare agencies. The meals which were most challenging to the students were those which were worked out for the Associated Charities' Food Allowance. As soon as completed, copies of these menus were put into five thousand baskets, each of which contained a two-weeks' supply of food for a family. A few practical recipes for variations in the limited kinds of foods, and suggestions for substitutions were included. Case workers report that many families have welcomed and used the new ideas.

Nutrition students have helped with a class in prenatal care at the health center in one of the poorest districts of the city. Throughout one semester girls have taken turns to prepare and serve a cheap, nourishing dish which emphasized the foods which the expectant mother should eat daily. The method of preparation, food value, place in the menu, and cost were explained.

To teach a group of girls how to prepare food and plan meals at the Catherine Booth Home was the semester's project of two seniors. This

is a Salvation Army home for young, unmarried, or dependent mothers. The organization tries to find jobs for the girls after they leave. Since the majority of them go into domestic service and only about one-fifth know how to cook, the need for training was very pressing. In a short course of fifteen lessons and with inadequate facilities, the development of skill could not be expected, but the class did seem to become interested in the subject and they had an opportunity for further practice in the Home. Notebooks with mimeographed sheets of information were given for future use.

Another means of extending nutrition teaching in the community was a class in food preparation which a student conducted each semester at the new Children's Convalescent Home. The purpose was to teach these children how to prepare the foods which they should eat, so they can show their mothers when they go home.

By far the most extensive social service activity was the sixth annual Mothers' Pension project. This year thirty students participated in the different phases: family case work for a semester, nutrition classes for the fifteen mothers and fifty-nine children, and meal preparation for a group of 108 persons at eight weekly meetings.[1]

Through these and other projects, the nutrition department tries to serve the community and at the same time to give students an opportunity to apply principles to real problems —ELEANOR R. MACLAY.

A DEMONSTRATION FOOD LESSON. Demonstration lessons afford so excellent an opportunity for improving the effectiveness of the work of the teacher in service that the supervisor of home economics in the Baltimore public schools occasionally asks one of the better teachers to give a demonstration lesson in lieu of the regular monthly staff meeting.

The teacher plans her lesson very definitely as she would an ordinary classroom presentation and discusses it with the supervisor. The modified plan is then mimeographed to be given to the other teachers. Since each teacher meets several classes of the same grade during a week, she can experiment in one class with the lesson planned, make any advisable improvements, and then invite the supervisor and assistant supervisor to view the lesson as it is given to another class. After the suggestions from this preview have been embodied, arrangements are made to

[1] A description of this project may be obtained from the School of Household Administration without charge.

have the lesson taught to a third class after school instead of during the regular class period as a demonstration before the other home economics teachers. That these lessons are planned with a definite objective over and beyond teaching the subject matter involved, may be seen from the following description of a demonstration lesson taught before a group of colored elementary home economics teachers by one of their own race, Miss Margaret L. Bryan. Although the lesson dealt with creamed cabbage, her chief objective was to help the pupils to establish right work habits.

The lesson was taught in the regular foods laboratory, a standard kitchen equipped for twenty-four. It was an ordinary room but spotless and made unusually attractive by the addition of simple white curtains, ferns, and green and orange accessories.

When the bell rang, the children entered the room, put on their uniforms, placed their bags, books, and other belongings on assigned shelves, and lined up while the teacher quickly inspected their uniforms, teeth, finger nails, stockings, and shoes. During the inspection, the members of the class picked four girls whose personal appearance most nearly approached perfection. If buttons were off or there were rips or tears in the aprons, the garment was repaired immediately with needle and thread from the teacher's sewing basket. There was an extra apron and cap which she loaned to a child who did not have hers and who at the end of the period laundered it so that it would be ready for someone else. Wrinkled aprons were quickly pressed.

As soon as all the girls had passed inspection and washed their hands, the class gathered about the teacher to read together from the blackboard the problems and aims for the day. The group then moved to the demonstration table, where the children reviewed the steps in making white sauce while the teacher, following their directions, demonstrated its making. In doing this, she emphasized the use of as few utensils as possible, careful measurements, the qualities of good white sauce, and ways of securing them. She then demonstrated the chopping of cabbage and led a brief discussion of how to clean and cook such vegetables so that when the girls returned to their places they knew exactly how to prepare creamed cabbage.

The girls worked in groups of four, and jobs were assigned before they began work by giving each child an attractive card with directions. Each girl read her card, was given an opportunity to ask about words or directions which she did not understand, returned the card, and began work.

While the girls worked, the teacher moved about, helping and offering suggestions to individuals or the entire group, whose attention she secured by blowing a tiny referee's whistle.

After the cabbage had been prepared and put into the oven, the girls placed their soiled utensils in one end of the sink, cleaned their tables, and were seated for discussion of the food value and cost of fresh vegetables. An attractively colored poster of cabbage, turnips, beets, and lettuce, and actual vegetables secured from the neighboring market formed the basis for the discussion. Again with skillful questioning the children were able to give the teacher the information which she wished to bring out in the lesson, and with flash cards prepared from large sheets of manila paper and India ink she was able to clinch certain points.

Thanks to the many time-savers used, each child had time to copy into her notebook the sentences on the charts, as well as to lay at her desk an individual cover consisting of paper napkin (which served as a doily), plate, fork, glass, and napkin. The teacher then called the class together, reviewed the principles underlying the correct methods of table-setting, and demonstrated how to take one's seat and use a napkin.

The class met at the demonstration table again to judge their finished products, to summarize the points in cooking cabbage correctly, and to compare their correctly cooked cabbage with cabbage which had been cooked for an hour and a half earlier in the day.

Three children in each group were seated, and after the teacher had demonstrated the proper method of waiting on the table, the one previously appointed to act as waitress served the cabbage to her group. The four girls selected earlier for their neat appearance were allowed to eat at the attractively laid dining table. Because the children were inclined to dilly-dally while they were eating, the teacher set her alarm clock to go off about the time they should finish. This amused the girls, and they finished quickly and prepared to clean up the laboratory.

Again the teacher passed around gay numbered cards, this time with directions for the various parts of the dishwashing and tidying-up process which was distributed among different groups. Listening to the music from a portable victrola, the little girls did the work quietly and efficiently. When it was finished they took off their uniforms and put them away, secured their belongings from the shelves, and as they stood in line awaiting dimissal reviewed once more the qualities of good creamed cabbage and were given the assignment for their home work. The class was dismissed on time.—MERLE FORD.

EDITORIAL

NUTRITION IN THE PUBLIC SCHOOLS. This was the subject of the second cooperative study made by the Department of Supervisors and Teachers of Home Economics in the National Education Association under a committee of which Carlotta C. Greer was general chairman and which recently sent its final report to the members of the Department.

The study was aimed primarily to discover to what extent fundamental facts of nutrition are being taught to school children, and for this survey "nutrition study" was defined as any study which teaches children to select and use such foods as will produce optimum health. Information was collected by means of a questionnaire concerned with terminology, administrative and teaching procedures, and the type and content of courses. This was sent to 244 schools or school systems in 48 states, and the replies received from approximately half of these schools present an interesting picture of achievement and need.

Nine titles for such courses were reported, of which "food study" seems to be the favorite, appearing in 59 per cent of the returns. "Nutrition" and "dietetics" come next in order of frequency.

The responsibility for these courses is carried by home economics teachers in three-fourths of the schools reporting, although in some dozen schools it rests with the health teacher and in about the same number with the elementary teacher. In 8 per cent of the schools the home economics teacher is responsible for teaching fundamental facts of nutrition to the entire school, while in the other 92 per cent her responsibility extends only to members of her own department. Although the 92 per cent may include cases in which boys and girls not enrolled in home economics have some organized opportunity to get such information, these figures suggest a serious gap in the service.

No general preference appears for making the courses either elective or required, though the latter practice seems more frequent for junior high schools. The gratifying conclusion that the service type of course is growing in popularity is justified by the fact that approximately half of the courses identified in the study are classified as non-technical. That emphasis is being placed on positive training is indicated by course

content analysis, which shows that "the function of food stuffs" and "the composition of foods" divide honors for most frequent mention; "desirable attitudes" and "distribution of vitamins" for second place; "diet of adolescents," "diet of babies," and "computation of caloric value" for third place.

Among methods used to make nutrition function in everyday living are planning and preparing meals for children, adolescents, and adults; scoring food and health habits, including the checking of cafeteria trays; and such demonstrations as assembly programs, posters, and rat-feeding experiments.

The general impression left by the study was well summed up by Dr. Mary Swartz Rose when a preliminary oral report was made by Miss Greer at the February meeting of the Department:

> Today we look backward with some satisfaction to the fact that we have been able to start the ball forward. We look forward with humility to the task before us and wonder how we shall be able to meet our responsibility.

YEARBOOK ON CHARACTER EDUCATION. The tenth yearbook of the Department of Superintendence of the National Education Association holds much by way of theory and fact concerning education for character development and is of vital interest to all who would help boys and girls develop good character. In it the authors—nine prominent educators comprising the character education commission—show what the public schools can do in this cause.

Recognizing that there is no magic formula for character development, they have suggested how the physical resources of the school, the curriculum, the classroom procedures, and the extra-curriculum activities may help school boys and girls to create and discover a way of living which constantly will enrich life for themselves and others.

The critical appreciation of ways of measuring progress in this field offers suggestions for the use of tests and supplies the most comprehensive list of measures, tests, and indices of character education available, even as it reminds us that the complexity of human personality will always make the measurement of character difficult.

The book also analyzes the present American industrial order from the point of view of character education and the contributions made to character by the home, the community, the church, the institution of private property, the press, the cinema, organized sport, and social, civic, religious, and political organizations.

"In recognition of the tremendous impetus that the new civilization has given to the importance of serious study of home and school relationships in the matter of character education," one complete chapter is devoted to home and school cooperation.

"Yearbook extraordinary" is the description given of the report by William McAndrews, who reviews it for *School and Society* and ranks it as the "most reasonable, helpful, unprejudiced and useful work on schools and character that has appeared in print."

HOME ECONOMICS TESTS AND MEASUREMENTS. Discussion at the recent annual meeting of the American Council on Education which follows a report by Dean Herbert E. Hawkes on "The Proposed Manual of Examinations" indicated decided difference of opinion concerning theories and practices of educational measurement. However, though educators continue to differ on whether and how knowledge, character, and ability can be measured with a view to prediction, it is probable that tests of a kind will be employed with increasing frequency as at least a partial basis for judgment concerning the individual and his education. In home economics circles keener professional competition tends to suggest exclusion of the unfit and those who display mediocre aptitude through the establishment of various levels of membership and test "hurdles" so to speak. The ever widening scope of the homemaking curriculum calls for more refined analysis of the purpose to be served by the subject matter of instruction. Educational systems continue to demand student classification and promotion on the basis of estimated achievement. All these are arguments for finer testing devices.

In summarizing the situation regarding educational measurements in 1929, G. M. Ruch in "The Objective or New-Type Examination" cites four types of measurement: oral questioning, the traditional examination, the standard test, and the objective or new-type examination; and four generally accepted functions: motivation of learning for pupils, maintenance of standards of accomplishment, training in the use of English, and measurement of accomplishments. Among criteria he includes validity, reliability, ease of administration and scoring, and the norms or standards used for the evaluation of results. He predicts that something like the objective examination will be the principal reliance of the classroom teacher for the next few decades. He makes a possible exception in the case of measurement of expressional and appreciational subjects, where the old-type examination may prove more satisfactory

if its vagaries can be controlled. M. R. Trabue pointed out in "Some Applications of Psychology to Teaching Methods in Home Economics" in the JOURNAL for October 1927 that much remained to be done in developing objective measures of success in home economics teaching and that with one or two exceptions the important skills and appreciations in home economics had not been adequately measured in an objective fashion. Miss Clara W. Hasslock, in summarizing a recent unpublished critical survey of home economics tests, rightly concludes that Mr. Trabue's statement applies with as much accuracy now as five years ago and further suggests that a critical evaluation of such measurements as do exist might serve to stimulate interest and research in this connection.

So far as is known, no one has assembled all the tests for home economics achievement, much less evaluated them all. Those known to the JOURNAL as now available are listed here for convenience of reference and as showing progress and indicating trends.

AVAILABLE TESTS

Bureau of Public Personnel Administration Tests for Cook. Public Personnel Studies, 923 East 60th Street, Chicago, 1927, $0.20.

Bureau of Public Personnel Administration Tests for Dietitian. Public Personnel Studies, 1929, $0.20.

Bureau of Public Personnel Administration Tests for Housekeeper. Public Personnel Studies, 1928, $0.20.

[Davis] Achievement Scale in Household Science. By MAY E. DAVIS. New York. Ginn and Company, 1928, $0.72 per 30.

Engel-Stenquist Home Economics Tests. By EDNA M. ENGLE and JOHN L. STENQUIST. Yonkers, N. Y.: World Book Company, 1931, each test sold in packages of 25 with manual of directions, key, and class record, price per package $1.00 net.

Frear-Coxe Clothing Test. By FLORENCE D. FREAR and W. W. COXE. Bloomington, Ill.: Public School Publishing Company, 1929, $0.15, $1.25 per 25.

[Illinois] Information Test on Foods. Test Committee of the Illinois Home Economics Association, ANNA BELLE ROBINSON, chairman. Bloomington, Ill.: Public School Publishing Company, 1924, $0.10, $0.75 per 25.

King-Clark Foods Test. By FLORENCE B. KING and HAROLD F. CLARK. Yonkers, N. Y.: World Book Company, 1924, $0.10, $1.00 per 25.

[Leary-Dry] Technical Information Test for Girls. By DANIEL B. LEARY and RICHARD R. DRY. Chicago: C. H. Stoelting Co., set of 25, $2.20; set of 100, $6.60. Manual No. 46395, $0.20. (Address: 424 North Homan Avenue.)

[McAdam] Domestic Science Tests [Foods]. By GRACE P. MCADAM. Detroit: Board of Education. (Not available for general distribution.)

Minnesota Rating Scale for Teachers of Home Economics. Minneapolis: University of Minnesota Press, 1931, $2.00 per 100

Murdoch Analytic Sewing Scale for Measuring Separate Stitches. By KATHARINE MURDOCH. New York: Bureau of Publications, Teachers College, Columbia University, 1923, $0.25, manual $0.10.

Murdoch Sewing Scale. By KATHARINE MURDOCH. New York: Bureau of Publications, Teachers College, Columbia University, 1920, $1.50.

Pressey Technical Vocabularies of the Public School Subjects. Section 12. Home Economics. By LUELLA E. PRESSEY. Bloomington, Ill.: Public School Publishing Company, 1924, $1.50 per 35.

Stevenson-Trilling Test in Comprehension of Patterns. By LILLIAN STEVENSON and MABLE TRILLING. Bloomington, Ill.: Public School Publishing Company, 1926, $1.00 per 25.

Stiebeling-Worcester Buttonhole Chart. By HAZEL K. STIEBELING and DEAN A. WORCESTER. Emporia, Kansas: Bureau of Educational Measurements, Kansas State Teachers College, 1921, $0.17 per copy.

BOOKS GIVING GENERAL OR SPECIFIC SUGGESTIONS

BROWN, CLARA M. *An Evaluation of the Minnesota Rating Scale for Home Economics Teachers.* Minneapolis: University of Minnesota Press, 1931, $0.50.

KELLEY, T. L. *Interpretation of Educational Measurements.* Yonkers, N. Y.: World Book Company, 1927, $2.20.

LANG, ALBERT RAY. *Modern Methods in Written Examinations.* New York: Houghton Mifflin Company, 1930, $1.90. (Especially pages 238–243.)

MORT, PAUL R., and GATES, ARTHUR I. *The Acceptable Uses of Achievement Tests.* New York: Bureau of Publications, Teachers College, Columbia University, 1932, $1.00.

ODELL, C. W. *Educational Measurement in High School.* New York: The Century Company, 1930, $3.25. (Chapter 10).

PATERSON, DONALD G. *Preparation and Use of New Type Examinations.* Yonkers, N. Y.: World Book Company, 1925, $0.60.

RUCH, G. M. *Improvement of the Written Examination.* New York: Scott Foresman and Company, 1925, $1.80.

———. *The Objective or New Type of Examination.* New York: Scott Foresman and Company, 1929, $2.20.

RUCH, G. M., AND RICE, G. A. *Specimen Objective Examinations.* New York: Scott Foresman and Company, 1930, $1.80.

RUSSEL, CHARLES. *Classroom Tests.* New York: Ginn and Company, 1926, $1.60.

SMITH, H. L., and WRIGHT, W. W. *Tests and Measurements.* New York: Silver, Burdett and Company, 1928, $3.00.

SYMONDS, PERCIVAL M. *Measurement in Secondary Education.* New York: The Macmillan Company, 1927, $2.50. (Especially pages 216–221.)

WEIDEMANN, C. G. *How to Construct the True-False Examination.* New York: Bureau of Publications, Teachers College, Columbia University, 1926, $1.50.

ADVERTISING REVIEWED BY ADVERTISERS. The *Guide for Retail Store Advertising* published by Affiliated Better Business Bureaus, Inc., and noted on page 633 in July is proof that progressive re-

tailers understand the part played by honest advertising in the good relations between retailers and their public. Another significant step in the same direction is the formation by the American Association of Advertising Agencies and the Association of National Advertisers of a joint Review Committee to judge cases considered to violate sound advertising practice.

This action was suggested by the National Better Business Bureau last December and was preceded by careful study of the situation by representatives of the Association of National Advertisers and the American Association of Advertising Agencies. The statement of their findings as given in a news release dated May 26 bears so directly on problems of consumer purchasing that certain sections seem worth quoting here:

In the main, advertised products are honestly promoted. Were they not, advertising never could have attained the volume it now has nor have exerted the influence so familiar to us all.

It is a minority of advertising, much in the public eye, which offends, and because of its bold and incisive appeal, may well give a distorted impression that advertising, in general, is untrue or to be discounted by the reader.

The Function of Advertising: In order to arrive at sound opinions it is first necessary to determine what the function of advertising really is.

Most advertising is purely commercial, and aims to create or extend sales and good-will for the advertiser, his service or product.

To be effective, it must frequently make a persuasive appeal, influence a mass mind whose buying motive is emotional as well as factual.

Advertising may, therefore, have some imaginative and dramatic leeway; it need not be limited to a bald recital of facts.

Limitations under Which It Works: But advertising has an obligation to itself and to the public. It should not violate good faith or business morals.

It should protect itself against loss of confidence on the part of readers—maintain credibility to secure response. It should render reliable service to the consumer.

Advertising reflects the level of commercial standards, but differs from personal negotiation, barter or trade, in being a public offer or pledge, made in a public medium and therefore involves responsibility to the public.

Practices That Are Unfair: In order that advertisers, publishers, and agencies may have a code of standards for their guidance, the following statement of practices that are unfair to the public and tend to discredit advertising, has been formulated and approved by both associations:

1. False statements or misleading exaggerations
2. Indirect misrepresentation of a product, or service, through distortion of details, either editorially or pictorially
3. Statements or suggestions offensive to public decency
4. Statements which tend to undermine an industry by attributing to its products, generally, faults and weaknesses true only of a few
5. Price claims that are misleading

6. Pseudo-scientific advertising, including claims insufficiently supported by accepted authority, or that distort the true meaning or application of a statement made by professional or scientific authority
7. Testimonials which do not reflect the real choice of a competent witness

This advertising copy code was designed as a guide for advertisers, agencies, and publishers. In order to give it a definite application it seemed necessary to establish a representative body to interpret and apply it. This has been accomplished by the formation of the Review Committee. The twenty members include five appointed by each of the two associations concerned, five magazine publishers chosen by these ten; while these fifteen will select five more "members of recognized standing and good repute, but not connected with advertising or publishing."

The following paragraphs show how the committee is expected to function:

Only such cases shall be reviewed by the Committee as are considered to violate sound advertising practice as defined by the Joint Committee copy code.

The Review Committee will not attempt to be the judge of facts in themselves, but will interpret them in the light of principles established by the Code.

Since the Review Committee is to be, in effect, a "court" of appeal, it can deal only with cases which have been tried in a lower "court" and appealed because of disagreement. Since the National Better Business Bureau already has the necessary machinery to function as a lower "court," it was decided to recognize that bureau as the cooperating body.

Therefore, the Review Committee will consider only those cases where the National Better Business Bureau has been unable to decide the issue to the satisfaction of the parties involved.

Subject to the discretion of the Review Committee, any eligible case can be referred to it for consideration at the instance of the complainant in the case, or the defendant, or the National Better Business Bureau.

In agreeing to act as cooperating body in the operation of the plan, the National Better Business Bureau expresses the belief that "it will lead to more effective dealing with that minority of advertisers who would exploit public confidence; and in thus establishing an effective means of voluntary self-regulation, help to make advertising a more profitable medium for all who use it."

DOMESTIC SCIENCE IN MADRAS SCHOOLS. Ever since Phyllis Harley was a traveling fellow of the American Home Economics Association and interpreted home economics and the education of girls in India each to the other in the JOURNAL for November 1930, American home economists have felt a warm interest in what is done in that country

to educate girls and women for homemaking. The connection has also brought the international committee of the Association into closer touch with other workers in India, among them Miss Winifred Park, domestic science specialist to the Madras Government, who is also associated with the Domestic Science Training Center, 14 Rundalls Road, Vepery, Madras. From her has come a brief description of the work now done in the European and Indian schools of the presidency of Madras, the main points of which are here passed on.

Domestic science is now a compulsory subject in all Indian high schools for girls and covers a wide variety of subjects, such as hygiene, care of the sick, care of children, wise choice of diets, and cookery. The great drawback in this work is lack of teachers trained in domestic science.

Such subjects are also taught in the European high schools for girls, and the work is under supervision and inspection of the government's domestic science specialist. It includes domestic science in all its branches, among them needlework and dressmaking. Training in these subjects is required of all teachers in the European schools, and since 1910 the Madras Government has maintained the special domestic science training center for this purpose. During 1931–32 one hundred and twenty teachers were enrolled there. The teachers take a government examination and if successful receive a certificate qualifying them to teach these subjects in European schools throughout the presidency.

As regards college and graduate courses, since 1928 graduate students have been permitted to take domestic science as their special subject for the degree as Licentiate of Teaching of the Madras University. The course is for one year only and includes dietetics, practical cookery as applicable to the Indian home, chemistry of food, maternity and infancy welfare, and community hygiene. The Madras Presidency is the first part of India to introduce this subject into a course leading to a university degree. It is the most popular subject with the women students, twenty-four choosing it in 1931–32. Twelve of them came from each of two colleges affiliated with the University, namely Lady Willingdon Training College, a government institution, and St. Christopher Training College, a school under Christian auspices.

From this it is evident that the weakest point in the system is the training—or lack of training—for teachers of domestic science in the Indian schools. There is very urgent need of a two-year special diploma course. The Madras Government fully intended to offer it in 1930, but owing to retrenchments this was not possible. As Miss Park says, no progress in domestic science in the Indian high schools will be possible until fully

trained teachers are available, and her American colleagues will share her hope that the value of such work will soon be fully realized and courses introduced into the colleges and a degree given in domestic science.

THE PLIGHT OF GERMAN TEACHERS. If misery loves company and can take heart in learning that others are worse off, American teachers should be interested in figures given by *The Times Educational Supplement* for June 11. Very drastic reductions in school funds have been found necessary by the German government in its economy program. Thus in the Prussian schools alone, about two thousand teachers have been "economized" out of jobs. The number of hours of tuition given to pupils has been decreased; the hours of teaching required of the staff have been increased; and the number of pupils in a class has been considerably raised. Small communes whose schools rely on state assistance have been forced either to close or to amalgamate with other schools.

The situation for teachers is becoming so serious that several of their organizations have asked that training for the profession be temporarily closed or "blocked." Says *The Times:*

> There are already several academic professions in Germany which have been "blocked," at any rate from time to time, because there were not enough posts to be filled—the forestry profession, for instance, and the career of higher post office officials. A similar "blockade," it is considered, might benefit the teaching profession. It already exists in the case of teachers of such subjects as drawing and singing. Even the so-called "Pädagogische Akademien" (elementary teachers' training colleges) have this year (1932–33) not accepted any fresh applicants for training. The result of all this is, that an important profession is at the moment as good as closed to boys and girls leaving school.

This situation, of course, raises the urgent question of what is to be done with the thousands of these young people who hold matriculation certificates but for whom no positions are likely to be available.

> In former years about 85 per cent of these went on to study at the university. At the moment about 40,000 students are studying at German universities. Thus the economic law that the number of students at the universities increases in times of economic distress has again proved itself to be true. But at the moment about 100,000 men with university degrees in Germany are out of work. It has been calculated that from 5,000 to 6,000 vacancies can be found for academically trained persons every year, and that every year 25,000 academically trained persons become ready for employment. The logical conclusion is that, if no change in the situation occurs, an academic proletariat of several hundreds of thousands of people will gradually be formed.

The German Government will have its work cut out to tackle this problem. It will have, before long, to devise some means of sorting and apportioning its unemployed university men. This is not a problem which is singular to Germany, but it is one for which Germany must find some solution.

The situation of the teaching profession in this country may not be so serious as in Germany, but it is already giving anxious moments to many of its members. And closely allied to it is the broader question raised by Harold F. Clark in the July JOURNAL. What can we do to keep a balance between the number of young people trained by our schools for special fields of work and the number of positions available in those fields?

WHAT THE UNITED STATES DEPARTMENT OF AGRICULTURE AND THE BUREAU OF HOME ECONOMICS GIVE YOU FOR YOUR MONEY. Among the effective statements about home economics presented to the members of the National Congress of Parents and Teachers at the National Homemaking Conference on May 16 (see August JOURNAL, page 711) was one about the United States Department of Agriculture as a whole and another about its Bureau of Home Economics. Both were based on expenditures for the fiscal year 1931. They were set up in an attractive form not easily reproduced here, but the facts speak for themselves.

The statement about the United States Department of Agriculture was as follows:

At an annual cost of 53 cents per capita—4½ cents per month—the U. S. Department of Agriculture furnishes the residents of the United States these services:

Daily weather reports
Pure food and drug control
Meat inspection
Research on home problems (Bureau of Home Economics)
Forest and wild life conservation
Control of pests and diseases, including animal tuberculosis
Improvement of quality of foodstuffs and all farm products
And many other public services

The total appropriation for the Bureau of Home Economics in the fiscal year 1931 was $205,752, and this is the statement regarding it:

To the average American citizen this means a cost each year of 1/100 of 1 cent for information on all these subjects:

Low-cost diets and economical buying of food
Children's food and food habits

Well-balanced meals for the family
Vitamin content of foods
Chemical composition of foods
New and better methods of preparing foods
Family budget plans
Costs and standards of living
Use of time in the household
Wise use of cotton and wool fabrics
Self-help clothing for children
Home laundering and stain removal

These figures, especially those from the Bureau of Home Economics, seem to settle the criticism that through it Uncle Sam is spending huge sums of money for studies of no practical use.

HOME ECONOMICS AT ATLANTIC CITY. Home economists attending the recent meetings of the Department of Supervisors and Teachers of Home Economics in the National Education Association took away new inspiration and much food for thought as well as a rich coat of tan and delightful memories of hospitality, sea breezes, boisterous waves, and the famous board walk at Atlantic City.

At the first general session on Monday, June 27, able speakers developed the theme "The Long View of Home Economics Education and Our Responsibility in Developing Attitudes." In speaking of "Home Economics and Life Attitudes," Dr. Ira S. Wile, nationally known pediatrician and educator, reminded his audience that homemaking primarily involves people and presented evidence to show that abilities in skills and technics do not necessarily organize themselves into ability to create and maintain desirable home atmosphere, nor does experience in activities of housekeeping necessarily build a desire for home life. He further suggested that while the specific content of home economics courses recognizes woman's indisputable rôle in homemaking, the ambiguity of the term "home economics" implies the interpretation of skills or aptitudes in terms of human qualities; the weaving of skills in living into the art of living; putting facts into service; "concretizing" creative ideals into life; or developing from knowledge, ability, appreciation, habits, and ideals desirable social-economic attitudes towards home life. Newell W. Edson of the American Social Hygiene Association, who spoke on "Teaching Family Relationships in the Present Crisis," emphasized the need for helping all boys and girls as well as men and women to interpret family life in terms of physical, mental, and emotional health. He also pointed

out that the home is primarily a medium for expressing personality, a place where growing individuals find opportunity for exercising judgments, making choices, experiencing social cooperation, and developing interests which tend largely to determine adult attitudes.

"Finding Self Expression and Satisfactions in Home Life" was the theme of the second general session on Tuesday. Mrs. Marion M. Miller of the Child Study Association of America summarized the unique opportunity for individual self-expression and satisfactions in home life. Howard F. Bigelow of Western State Teachers College, Kalamazoo, Michigan, who maintained that "the task of homemaking education is so to educate that people will live sanely and comfortably and face the hazards of life calmly and with a steady nerve," convincingly discussed the relation of family solvency to such a mode of life and offered concrete suggestions concerning training which might give an adequate background for meeting problems of family finance. In addition, Professor Cora M. Winchell of Columbia University spoke of "Home Activities for General Education in an Integrated Program." Professor Winchell showed that home activity has inherent values for education and suggested the effect which "integration" of the school program would have on home economics from the point of view both of the content and of the teacher.

The report of the cooperative research committee on the results of the nutrition survey conducted during the year, which is summarized on page 809, indicated such excellent progress and possibilities that the study is to be continued for a second year.

At the business meeting an enrollment of 475 members was reported, almost exactly divided between new memberships and renewals. Carlotta Greer of the Cleveland Public Schools was elected president; Ada Kennedy of Pasadena, vice-president; Alice M. Currier of Pawtucket, secretary; and Mary Buckley of Newark, New Jersey, treasurer.

The culmination of the meetings was a banquet in the famous Ozone Room atop the Dennis Hotel with a splendid four-way view of the ocean. This unusual setting yielded first place in interest to the speakers of the evening, Forrest E. Long, professor of education at New York University, and Dr. Edwin W. Adams, assistant superintendent of the Philadelphia Public Schools, who discussed "First Things First in Education." They reinforced the belief of those present that the American home still stands, that it is cleaner, better, and more satisfying than ever, that men today are taking a more active part in the life in their homes, and that education for homemaking is entering a period of expansion and progress.

RESEARCH

IRON LOSS IN COOKING BROCCOLI

MABEL G. FLANLEY AND ELEANOR M. JOHNSON

BROCCOLI, although an old vegetable and one used commonly in Southern Europe, is comparatively new to the American market and has become a popular addition to the dietary during the past few years. A determination of its iron content and loss incurred in cooking should be of value and was undertaken in the department of home economics of the University of Washington, Seattle.

Preparation and method of cooking. Several variations in method were used in the cooking of broccoli. The proportion of water, the addition of soda, the stage of the cooking at which the salt was added, and the total immersion of the broccoli for the entire period versus cooking the stalks longer than the tips were tested. The procedure adopted was based on the texture, flavor, and color as scored by five trained judges. The method of cooking was dependent upon the type of broccoli used, the shorter heavier stalks and the tight buds giving a more tender product with a shorter cooking period. This type was used in this experiment, but the buds were only moderately firmly formed. The stalks were from $\frac{3}{8}$ to 1 inch in diameter, and the total length averaged approximately 7 inches.

Water was used in the proportion of one quart to 100 grams E. P. of broccoli; one teaspoon of salt was used to a quart of water (added to the boiling water before the broccoli); no soda was added. The individual pieces of broccoli were trimmed at the stalk end to $6\frac{1}{2}$ inches total length, tied in a bunch, put in boiling water, and cooked for 6 minutes with the stalks immersed in water and with the buds protruding. The entire bunch was then immersed and the cooking continued without a cover for another 14 minutes, a total cooking period of 20 minutes. The cooked broccoli was drained for one minute in a colander, and the iron determined on the liquid which passed through. Equipment applicable to methods in the home and at the same time suitable for iron analysis was selected.

A new granite kettle and colander, glass rods for handling the broccoli, an earthen bowl for receiving the water drainings, and glass beakers were used. Samples were washed in tap water (comparable with distilled water) and were cut with a new stainless steel knife. It may be noted that at first glass was tried in cutting the broccoli, but the cellular matrix was so badly macerated that the additional loss of iron in the cooking process would increase the error, and this method was dropped.

Iron determinations. Iron analyses were made according to the method of Stugart (1) without modification other than in regard to the temperature at which the ashing was done, fusion occurring whenever dull redness was approached, and the substitution of new, acid-washed porcelain crucibles for platinum dishes. The results, on the wet basis, are shown in the accompanying table.

Percentages of iron in edible portion of raw and cooked broccoli

SAMPLE NUMBER	RAW BROCCOLI		COOKED BROCCOLI		WATER DRAININGS FROM COOKED BROCCOLI	
	Percentage	Weight per 100 gm.	Percentage	Weight per 100 gm.	Percentage	Weight per 100 gm.
		milligrams		*milligrams*		*milligrams*
1	0.000996	0.996	0.000480	0.480	0.000503	0.503
2	0.001208	1.208	0.000622	0.622	0.000592	0.592
3	0.000988	0.988	0.000473	0.473	0.000530	0.530
Average...	0.001064	1.064	0.000525	0.525	0.000542	0.542

Summary. The average percentage of iron in the edible portion of raw broccoli was 0.001064; in cooked broccoli, 0.000575; and in the water drainings from the cooked broccoli, 0.000542. From these determinations it will be seen that the average iron loss incurred with a minimum cooking time of 20 minutes (6 minutes with only the stalks immersed and 14 minutes with the whole broccoli immersed) represents 50.9 per cent of the total iron. It is interesting to note that the loss of iron incurred in cooking as shown in this experiment compares with similar losses in vegetable cookery reported by Peterson and Hoppert (2) and Blunt and Otis (3).

With the loss so great in a short cooking period, it appears that the calculation of the iron content of cooked vegetables based on tables for raw materials is too inaccurate to be of value in nutrition work.

Addendum. Since the above experiment was completed, a publication entitled "The Iron Content of Vegetables and Fruits" by Stiebeling

(4) has appeared. In that study the iron content of raw broccoli was determined in various samples purchased in different seasons by the Zimmermann-Reinhardt method. The range of the percentages of iron in the raw broccoli was from 0.00093 to 0.00223. It is interesting to note that the results in our study come within the same range although the Stugart method was used.

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THE VITAMIN B AND G CONTENT OF RAW AND COOKED BROCCOLI

HAZEL E. MUNSELL AND HILDA BLACK KIFER

ALTHOUGH the vitamin potency of many vegetables has been rather intensively investigated, broccoli has received little attention in this respect. Vitamin A values are given by Rice and Munsell (1), but no report was found of a study of the vitamin B or vitamin G content. Inasmuch as this vegetable now appears regularly on the market and is comparatively cheap it seemed desirable to know more about its vitamin content. Accordingly, determinations of the vitamin B and vitamin G content were made in the nutrition laboratory of the Bureau of Home Economics.

A number of studies have been made to show the effects of canning on the vitamin value of several foods but little is known of the effect of cooking on vitamin values. Particularly is this true in respect to vitamin B and vitamin G. For this reason determinations were also made on broccoli cooked by a method ordinarily used in the home.

A quantitative determination of the vitamin B complex in collards and turnip greens, both raw and cooked, is reported by Burton (2). She cooked the vegetables in distilled water and regulated the quantity so that little remained at the end of the cooking period which was 30 minutes for the turnip greens and two hours for the collards. She found that the

cooking process resulted in a 10 per cent loss of the vitamin B complex in the turnip greens and a loss of from 40 to 45 per cent in the collards. Another determination of the vitamin content of turnip greens and collards, raw and cooked, was made by Newton (3). The vegetables were thoroughly washed, then dried on thick paper. Two hundred grams were then weighed and cooked in $1\frac{1}{2}$ cupfuls of boiling water to which $\frac{1}{2}$ teaspoon of table salt had been added. The turnip greens were cooked 45 minutes, and all of the water was evaporated. The cooked greens were weighed, and the percentage of raw equivalent was computed. It required 2 hours to cook the collards. The investigator reported that too few animals were used to give the effects of cooking on vitamin B, the antineuritic factor, in turnip greens. No tests were reported for vitamin G. Preliminary results had shown that the boiling of collards for two hours caused no appreciable losses of either vitamin B or vitamin G.

Experimental procedure. Broccoli is peculiar in that its edible portion is composed of buds, stems, and leaves. This vegetable has only recently come into wide use. It is comparatively easily grown and by using second cuttings it may be available in the garden until late fall.

The studies reported here were made during the winter months when the broccoli available was a California product. Only the edible portion of the plant was used. The smallest test portion used was 1 gram and in order to get a sample representative of buds, stems, and leaves it was necessary to have the vegetable in a finely divided state. To avoid macerating and squeezing out the juice with a consequent loss of vitamins, a special chopper was made of safety razor blades. These were inserted in grooves in a brass block. The chopping was done on a piece of smooth heavy plate glass.

In the case of the cooked broccoli it was desirable to know the equivalent of the uncooked product. Therefore, the vegetable was prepared for cooking and weighed. It was then cooked until tender in a small quantity of slightly salted, rapidly boiling water, cooled, and weighed again. The cooking was done in a good grade, deep white enameled saucepan with the cover off. The cooking time required was usually about 15 minutes, and the green color of the broccoli was well preserved. It was intended that the amount of water used should be such that little or none would remain after the broccoli was cooked. At times, however, a small quantity would be left and this was discarded as is usual with any strongly flavored vegetable. The test sample of cooked broccoli was prepared in the same manner as the raw material.

Vitamin B content. The antineuritic content of the raw and cooked broccoli was determined by a modification of the Sherman and Spohn (4) method as worked out in this laboratory. The basal diet consisted of cornstarch, 58 per cent; vitamin B-free casein, 18 per cent; autoclaved yeast, 10 per cent; filtered butterfat, 8 per cent; cod-liver oil, 2 per cent; and Osborne and Mendel salt mixture, 4 per cent. Albino rats 28 days old were fed the basal diet for two weeks in order to deplete the bodily stores of vitamin B before the supplements were added. Each animal was then fed daily, except Sunday, a weighed portion of the broccoli.

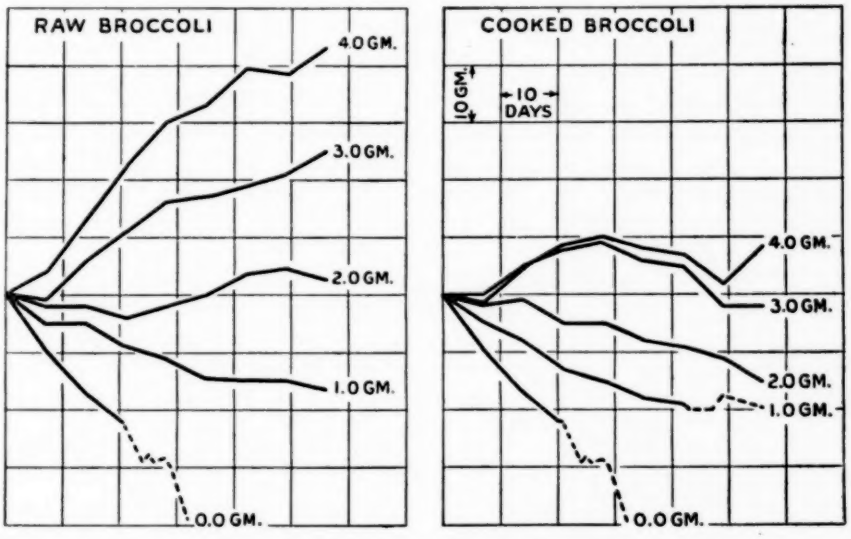

CHART 1. AVERAGE GROWTH CURVES OF YOUNG RATS FED RAW AND COOKED BROCCOLI AS THE SOLE SOURCE OF VITAMIN B

The amounts given at the end of the curves indicate the daily (6 times a week) portions of broccoli that each animal received. A broken line indicates that one or more animals have died.

The daily portions fed were 1, 2, 3, and 4 grams of raw broccoli and equivalent amounts of the cooked vegetable. Chart 1 shows that 3 grams of raw material induced a total gain in weight of 25 grams during the test period or, in other words, 3 grams of the raw broccoli contain 1 unit of vitamin B (5). Reference to the same shows that an amount of the cooked broccoli equivalent to 4 grams of raw contained no more vitamin B than 2 grams of the raw. This indicates a 50 per cent loss.

Vitamin G content. The vitamin G content of broccoli was studied by a method worked out in this laboratory. The basal vitamin G-deficient diet was that of Sherman and Spohn (4) modified by incorporating into

it such an amount of 80-per-cent (by weight) alcoholic extract of rice polish that 100 grams of diet contained the extract of 18 grams of rice polish. The extract was added as a source of vitamin B free from vitamin G. At the end of the two weeks depletion period the rats were fed portions of raw or cooked broccoli daily, 6 times a week. The portions used were 1- and 2-gram amounts. Considerable growth was made by the rats given the 2-gram portion (Chart 2), indicating that broccoli contains a measurable quantity of vitamin G.

The rats fed 2 grams of cooked broccoli gained at a somewhat lesser rate, indicating slight destruction of this vitamin during cooking. These data are also shown in Chart 2.

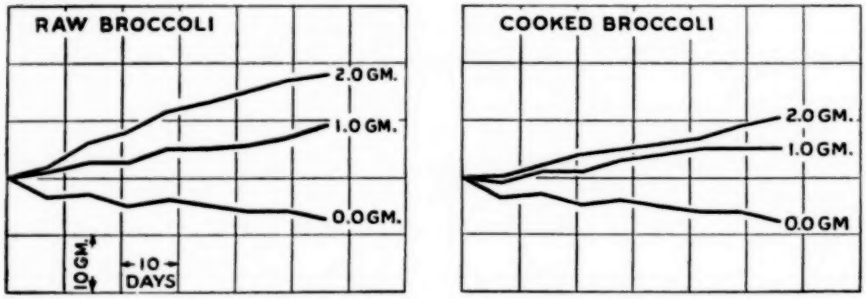

CHART 2. AVERAGE GROWTH CURVES OF YOUNG RATS FED RAW AND COOKED BROCCOLI AS THE SOLE SOURCE OF VITAMIN G

The amounts given at the ends of curves indicate the daily (6 times a week) portions of broccoli that each animal received.

Summary. Determinations of the vitamins B and G in raw and cooked broccoli are reported. Appreciable quantities of both vitamins are present in the raw vegetable. The cooking process destroyed about 50 per cent of vitamin B and caused some loss of vitamin G.

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VITAMIN C IN CANNED CITRUS PRODUCTS

CARL R. FELLERS AND PAUL D. ISHAM

BECAUSE of the increasing consumption of canned citrus products by American people and because physicians and mothers have repeatedly requested information on this point, particularly from the point of view of infant feeding, a vitamin C evaluation seemed desirable and was made at Massachusetts State College, Amherst.

There is little information bearing on canned citrus fruits in the literature. Delf (1) in England in 1925 reported that oranges canned by gradually heating to 100°C. and holding at this temperature for five minutes showed no loss in antiscorbutic property, and only a slight decrease in activity after four years. As canned at the present time, orange juice never exceeds a temperature of 65°C. and great care is taken to prevent oxidation. Apparently, the vitamin C activity of canned orange slices has not been reported. Koch and Koch (2) recently reported that in spite of cold storage or freezing, unstrained orange juice lost practically all of its vitamin C in three months. The method of storage was not stated, but air was probably not excluded. When a sirup was made of the juice, however, by the addition of sugar, citric acid, color, and preservative, there was practically no loss in vitamin C. Priston (3) likewise found orange concentrate to be a good source of vitamin C. The activity gradually decreased upon storage. MacLeod and Booher (4) in 1930 found that canned Florida grapefruit and grapefruit juice in amounts varying from 2.2 to 2.8 grams daily effectively protected young guinea pigs from scurvy and produced normal growth.

Methods and source of canned products. The methods employed in the present study were essentially those of Sherman, LaMer, and Campbell (5). To insure quantitative accuracy, feeding was done by means of a large-bore pipette. The canned slices were pulped by forcing through a coarse strainer.

The amount of fruit or juice fed was judged by weighing the animals before and during feeding process. Young guinea pigs weighing approximately 300 grams were used, the dose being apportioned according to weight. The test was run for 90 days. Autopsies were performed on the animals to determine the Sherman scurvy-score.

The oranges and grapefruit were grown and canned by the Dr. P. Phillips Co., Orlando, Florida, and were taken from grocers' stocks in

Buffalo, New York. The fruit was tree-ripened, prepared promptly for canning, heat-exhausted, sealed in plain tin cans, and subjected to a short heat treatment. Free oxygen is never present in cans of fruit after a few days' storage, the oxygen uniting supposedly with the iron and tin

Average gains in weight and survival periods and scurvy scores of guinea pigs receiving canned citrus fruits and juices as sole source of vitamin C

PRODUCT	NUMBER OF ANIMALS	DAILY AMOUNT FED	AVERAGE GAIN IN WEIGHT	AVERAGE SURVIVAL PERIOD	SCURVY SCORE	REMARKS
		grams	*grams*	*days*		
Canned orange juice	3	1	334	90	0	All animals made excellent growth. No trace of scurvy
" " "	3	2	406	90	0	
" " "	2	3	404	90	0	
Canned orange slices	3	1	227	90	2 (3, 4, 0)	Animals in excellent physical condition
" " "	3	2	406	90	0	
" " "	2	3	301	90	0	
Canned grapefruit juice	3	1	326	90	2 (2, 2, 2)	Very slight scurvy lesions on teeth and ribs only. Excellent physical condition
" " "	3	2	370	90	0	
" " "	2	3	292	90	0	
Canned grapefruit slices	3	1	312	90	2 (4, 2, 0)	Very slight scurvy. Animals in excellent physical condition
" " "	3	2	454	90	0	
" " "	2	3	394	90	0	
Fresh orange juice	4	1.5	295	90	0	No scurvy: good physical condition
Fresh grapefruit juice	3	1.5	227	90	0	No definite scurvy lesions; not quite so good as orange
Basal ration only (negative control)	3	0	−112	27	19	Marked scurvy in every case. Extreme emaciation

of the container. The fruits are therefore stored in an essentially reducing medium, for hydrogen gas is slowly evolved during storage as a result of acid-metal interaction. This explanation is given at this place because of its importance in accounting in part for the nature of the results to be given later.

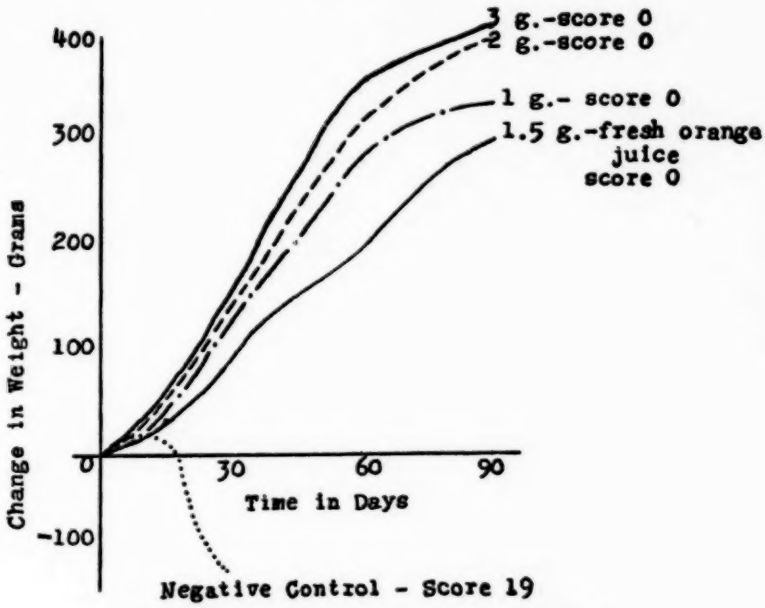

CHART 1. CANNED AND FRESH ORANGE JUICE

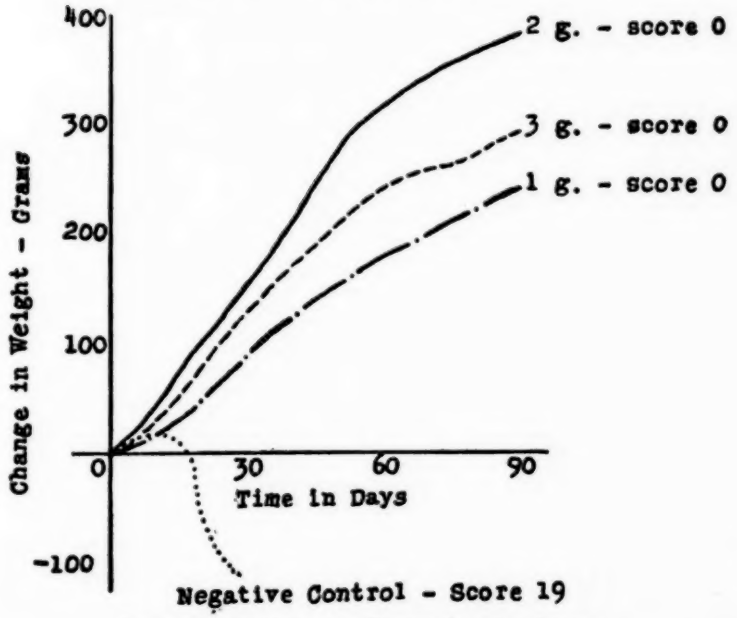

CHART 2. CANNED AND FRESH ORANGE SLICES

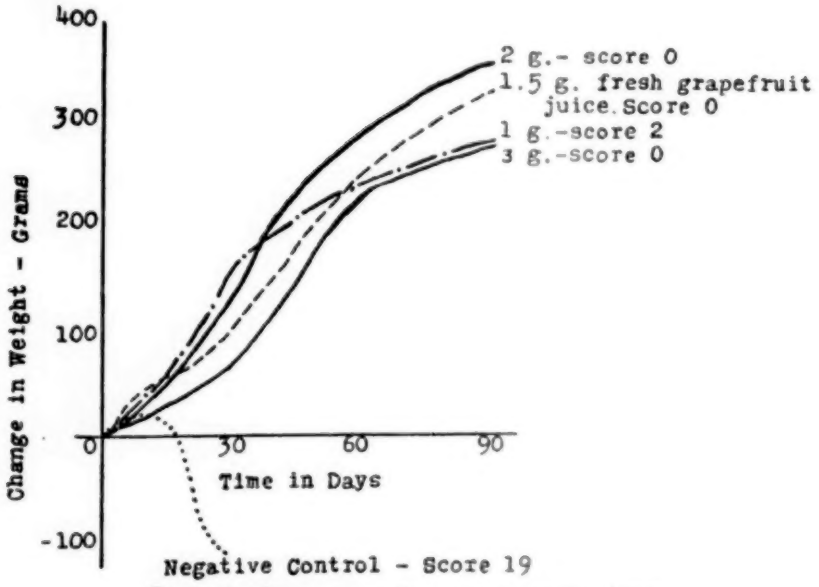

CHART 3. CANNED AND FRESH GRAPEFRUIT JUICE

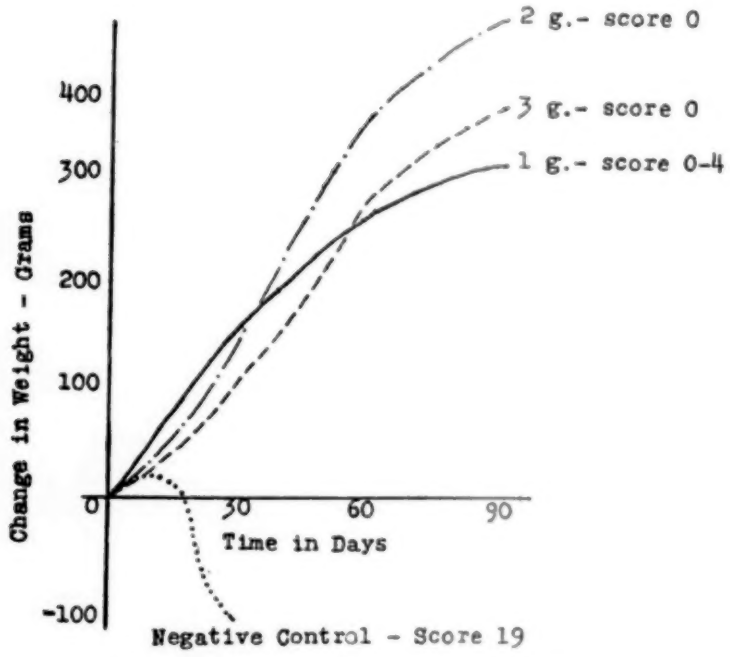

CHART 4. CANNED AND FRESH GRAPEFRUIT SLICES

When examined, the canned citrus products were from seven to ten months old.

Experimental results. The table and charts 1, 2, 3, and 4 present the experimental data.

One gram per day (6 days a week) of canned orange juice fully protected against scurvy in a 90-day test period. Canned orange slices were slightly less potent, but since a 1-gram dose gave only the slightest indications of scurvy (scores of 3, 4, and 0) and 2 grams fully protected, it is safe to assume that the protective dose of canned orange slices was only slightly more than 1 gram. Freshly expressed Florida orange juice fully protected from scurvy when fed at levels of 1.5 grams daily.

One gram of canned grapefruit juice or canned grapefruit slices did not quite afford protection over a 90-day test period. However, since two grams gave ample protection and excellent growth, the minimum protective dose may be estimated at slightly in excess of 1 gram, possibly 1.2 grams. It is apparent that grapefruit is only very slightly inferior to orange juice in its antiscorbutic properties.

Freshly expressed grapefruit juice afforded protection from scurvy when fed at the 1.5-gram daily level. Growth and physical condition were slightly inferior to those of animals fed on fresh orange juice. These juices were expressed from Florida citrus fruits bought in the public market at Amherst during August and September, that is, the fruit had undergone from 6 to 9 months' storage and still retained a high vitamin C potency. These results are in accord with those reported by Bracewell and Zilva (6), who found the time of picking and storage period had but little effect upon the vitamin C content of Honduras or South African citrus fruits. They found no correlation between the soluble solids, acid content, or pH of the juice and its antiscorbutic potency.

The negative controls, fed only the vitamin C-free basal ration, lived less than 30 days, showed marked emaciation, swollen joints, lameness, and inability to eat. At autopsy the characteristic scurvy lesions were found, namely, swellings and hemorrhages of the joints and rib junctions; hemorrhages in the intestines, bladder, and muscles; and marked disintegration and decomposition of the jaw and teeth.

Summary. 1. Canned orange juice was fully protective when fed to guinea pigs in daily doses of 1 gram. Canned orange slices, canned grapefruit slices, and canned grapefruit juice were slightly less effective than canned orange juice. Slightly more than 1 gram daily of these products afforded protection from scurvy and gave excellent growth curves in all animals.

2. The pipette method of feeding proved very satisfactory and is more exact than other technics used in feeding guinea pigs. All the animals took the food greedily.

3. Commercially canned orange juice, orange slices, grapefruit juice, or grapefruit slices after nine months' storage contained fully as much vitamin C as fresh citrus fruits. Canned citrus products are excellent sources of vitamin C and may be used in place of the fresh fruits. The hermetically sealed tin can prevents destructive oxidations of vitamin C in stored citrus fruits.

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BOOKS AND PERIODICALS

NEW BOOKS

Food and Your Body. By MARY PFAFFMANN and FRANCES STERN. Boston: M. Barrows and Company, 1932, pp. 170, $2.00.

The ability to popularize and visualize for children the fundamental principles of nutrition is all too rare even when the instruction is given under the most favorable circumstances. To be successful in such an undertaking with constantly changing groups of children awaiting examination or treatment in a crowded clinic is the achievement of the authors who are health educator and chief of the food clinic, respectively, of the Boston Dispensary. As the outcome of their experience, this little manual is a unique contribution to teaching material on foods and nutrition.

The subject matter is developed in ten lessons dealing, successively, with calcium the builder, growing (the protein lesson), food iron, foods for the body engine, sunlight for growth, teeth and food, the grains, healthful sweets, a mystery story (the vitamins), and maps and charts (a general review). The general scheme followed in each of these lessons, although not adhered to so rigidly as to become mechanical, consists in a foreword to the teacher, outlining the subject matter to be developed, a plan of presentation, with lists of materials for visualization, and then the talk itself in which, through skillful questioning and the use of visual material, the child is led to evolve as much as possible of the truths being taught. The principles developed are emphasized still further by a story appropriate to the subject and by games, suggestions for handwork, and even recipes to take home to mother. References to source material are given at the end of each chapter.

Although designed particularly for children of intermediate grade, the lessons contain unique and valuable suggestions and illustrative material for nutrition teaching at all age levels—in the clinic, in school, or in the home.—SYBIL L. SMITH, *Office of Experiment Stations, U. S. Department of Agriculture.*

The Acceptable Uses of Achievement Tests. By PAUL R. MORT and ARTHUR I. GATES. New York: Bureau of Publications, Teachers College, Columbia University, 1932, pp. 85, $1.00.

This manual discusses the methods by which achievement tests may be used as effective and helpful devices, avoiding those features which have given rise to much just criticism. Part I is devoted to administrative uses of achievement tests, and discusses comparison of results, diagnosis of individual needs, classification of pupils, and remedial teaching. Part II offers detailed suggestions for diagnosis and remedial teaching in those aspects of reading, spelling, arithmetic, and geography which are measured by the "Modern School Achievement Tests."

Remakers of Mankind. By CARLETON WASHBURNE. New York: The John Day Company, 1932, pp. 339, $3.00.

A leader in the progressive education movement in the United States who has recently visited educational leaders and institutions in the principal countries of Asia and Europe and in the United States gives his impressions of their aims and theories as shown in their replies to specific questions. The conclusion is that the leaders of educational thought are not in agreement about producing social change through education—some tending to emphasize the development of the individual, others that of society as a whole—and that neither aim can be attained without the other.

Dare the School Build a New Social Order? By GEORGE S. COUNTS. New York: The John Day Company, 1932, pp. 56, $0.25.

To Have or to Be—Take Your Choice. By HENDRIK VAN LOON. New York: The John Day Company, 1932, pp. 28, $0.25.

The Socialist Cure for a Sick Society. By NORMAN THOMAS. New York: The John Day Company, 1932, pp. 28, $0.25.

Home economists who wish to familiarize themselves with current thinking about the way out of the present economic and social dilemma may be interested in these essays by a prominent student of educational tendencies, a journalist trained as an historian, and a socialist. The first describes the tremendous possibilities of the schools for moral leadership and challenges the teaching profession to "grasp the opportunity the fates have placed in their hands."

Educational Experiments in Industry. By NATHANIEL PEFFER. New York: The Macmillan Company, 1932, pp. 207, $1.50.

This addition to the series sponsored by the American Association for Adult Education gives a general description of the education offered by modern industrial and commercial organizations to their workers, its aims, management, and subject matter; and cites actual examples of various types. That of W. F. Schrafft and Sons seems noteworthy in that it includes only cultural and no vocational training and results in a remarkably small labor turnover for a candy factory of this sort.

Education by Radio. Compiled by HELEN M. MULLER. New York: The H. W. Wilson Company, 1932, pp. 175, $0.90.

This volume from the publisher's well-known "Reference Shelf" gives briefs for and against radio as a means of education, a bibliography, and reprints of articles on different phases of the subject selected from competent authors.

Character Education. Tenth Yearbook of the Department of Superintendence. Washington, D. C.: The Department of Superintendence of the National Education Association of the United States, February, 1932, pp. 536, $2.00. Reviewed editorially on page 810.

Art Appreciation for Junior and Senior High Schools. By M. ROSE COLLINS and OLIVE L. RILEY. New York: Harcourt, Brace and Company, 1932, pp. 334, $1.80.

A textbook designed to help the ordinary boy and girl develop capacity for enjoying beauty wherever found, to improve judgment or taste as regards what constitutes beauty, and to suggest opportunities for experience in simple forms of creative art work and in selecting, arranging, and judging finished products. The early chapters of this book are devoted to art problems of school, community, and home, and carry

over 200 illustrations representing all forms of art and available materials suited to students of high school age. The later chapters deal with the fine arts.

Understanding the Arts. By HELEN GARDNER. New York: Harcourt, Brace and Company, 1932, pp. 336, $1.96.

An attempt to guide high or normal school students and laymen toward an appreciation of art that "involves an understanding of essential principles of art expression—balance, proportion, rhythm, variety, unity, harmony"; illustrated by pictures and discussion of the arts of building, the garden, city planning, sculpture, painting, and bookmaking. The choice of unusual and significant examples and the manner of presentation reflect the understanding of the interests of the public which the author has gained as teacher at the Art Institute of Chicago.

The History of Taste. By FRANK P. CHAMBERS. New York: Columbia University Press, 1932, pp. 342, $4.25.

An attempt to show the development of European taste as expressed in painting, sculpture, and architecture of different periods, and as judged by contemporary rather than modern standards, with an appendix on classical antiquity.

Housing in Switzerland and in Frankfort/M., Mannheim, and Karlsruhe. Brought out by the INTERNATIONAL HOUSING ASSOCIATION, Frankfort/M. Stuttgart: Julius Hoffmann, 1932, pp. 102, RM. 8 [$1.92].

This tri-lingual volume is a double number of *Housing and Building*, the organ of the International Housing Association, issued in special book form in connection with the study tour organized by the Association for the summer of 1932. It contains what is said to be the first comprehensive account of housing in Switzerland, a country distinguished for its high standards in this field, both before the War and in recent developments. Descriptions of projects in seven leading Swiss cities are described by technical experts, as are also those of the three German cities included. Well illustrated throughout.

Business Information and Its Sources. Compiled by MARIAN C. MANLEY. Newark, N. J.: The Public Library, 1931, pp. 32, $1.00.

Well-classified lists and notes on the use of magazines, federal publications, books, libraries, investment literature, trade and technical periodicals, maps, and general reference material as sources of information on business subjects.

Proceedings of the First International Congress on Mental Hygiene Held at Washington, D. C., U. S. A., May 5 to 10, 1930. Edited by FRANKWOOD E. WILLIAMS. Volumes One and Two. New York: The International Committee for Mental Hygiene, Inc., 1932, pp. 803 and 840, respectively, $10 per set.

The forty-five major papers and some two hundred discussions here included represent "a cross section of world opinion and information on mental hygiene and related subjects," and the unusually full index adds to its practical usefulness. The introductory sections describe the origins of the mental hygiene movement and the present organization of the International Committee for Mental Hygiene.

ABSTRACTS

CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

MENTAL HYGIENE

Psychiatric factors in stealing, H. M. TIEBOUT and M. E. KIRKPATRICK. *Am. J. Orthopsychiat.* **2,** No. 2 (1932, April) pp. 114–123.

Critical study of 106 cases of theft by delinquent children indicates that the psychological factors involved can be understood only when the multiple causative elements for each individual act are discovered. Furthermore, since inhibiting factors are introjected elements of early training, their potency frequently depends upon the handling of the situation.

Emotional problems in children as related to the duration of breast feeding in infancy, A. T. CHILDERS and B. M. HAMIL. *Am. J. Orthopsychiat.* **2,** No. 2 (1932, April) pp. 134–142.

A comparison of data on objectionable behavior manifestations found in the records of 469 children under 13 years of age who were referred to the new psychiatric clinic of Harper Hospital, Detroit, and on the duration of breast feeding show the smaller incidence of such traits in the groups in which breast feeding was continued into the normal period for weaning, preferably beyond the eleventh month.

Study of 25 children presenting the withdrawal type of personality, SAMUEL W. HARTWELL. *Am. J. Orthopsychiat.* **2,** No. 2 (1932, April) pp. 143–151.

Suggestions are given for the treatment of "queer" children based on the study of 25 young people, ranging in age from 7 to 18 years, who presented the withdrawal or shut-in clinical pattern. These include the establishment of deep rapport between the child and the adult who would help him, gaining the confidence of the child, showing him that life's genuine pleasures come from human relationships, and interpreting life and his environment to him.

Emotional disturbances among children, ELLEN B. SULLIVAN. *J. Juvenile Research* **16,** No. 1 (1932, Jan.) pp. 56–65.

The best treatment for overcoming undesirable attitudes and behavior is shown to be to correct any related physical, mental, and social conditions which might hinder the establishment of self-respect, security, self-confidence, subjective understanding of behavior, modesty, and objective interests.

Mental hygiene and character education, ALBERT S. BECKHAM. *Ment. Hyg.* **17,** No. 2 (1932, April) pp. 259–263.

Mental hygiene is shown to aid character education in that through it maladjustments threatening personality development may be checked and the child prepared for a life of service and social contacts, confident in himself and able to recognize merit in others. Psychotherapy, however, can only succeed when heredity, intelligence level, emotional stability, recreational outlets, and the social situation are included in the diagnosis.

Night terrors and the mutilation threat, GEORGE E. GARDNER. *Psychoanalytic Rev.* **19,** No. 2 (1932, April) pp. 182–199.

Fear born of earlier threats of mutilation is cited as the underlying cause of

night terrors, a most frequent neurosis in infants and children. A "play-story" technic which cured two cases is here reviewed.

Are broken homes a causative factor in juvenile delinquency? CLIFFORD R. SHAW and HENRY D. MCKAY. *Soc. Forces* **10,** No. 4 (1932, May) pp. 514–524.

Data on the incidence of broken homes among 7,278 unselected school boys in 29 public schools of Chicago suggest that the accepted assumption of the "broken home" as an important factor in delinquency rests on an inadequate basis, and that the underlying factors are aspects of family relations more subtle than a formal break. There are wide differences in the proportions of broken homes found in the different schools quite unrelated to the rate of delinquency or geographic location, but related to different racial and national groups and the age of the boys.

Discussion of "Are Broken Homes a Causative Factor in Juvenile Delinquency?" *Soc. Forces* **10,** No. 4 (1932, May). I. JOANNA C. COLCORD, pp. 525–527; II. KATHARINE F. LENROOT, pp. 527–529; III. HARRY M. SHULMAN, pp. 529–530; IV. J. B. MALLER, pp. 531–533.

Critical appreciations of Dr. Shaw's study which emphasize need for closer definition of such terms as "broken home" and "delinquent child" and study of the occurrence of delinquents and non-delinquents in the same family. Questions are also raised concerning the validity of conclusions drawn from data given.

GROWTH AND DEVELOPMENT

Intermittency in growth as an index of health status, C. E. TURNER, ELLEN LYTLE, and CHARLOTTE WINNEMORE. *Am. J. Pub. Health* **22,** No. 5 (1932, May) pp. 455–464.

Although intermittency in gaining weight does not draw a sharp line between the child who needs special attention and the child who does not, study of the monthly health and weight records of 971 children from 6 to 12 years of age in 6 of the elementary schools of Walden, Massachusetts, revealed unhygienic living habits, incomplete recovery from illness, or physical defects for the children who failed to gain over a three-month period.

The psychiatric implications in enuresis, OSCAR B. MARKEY. *Arch. Pediat.* **69,** No. 5 (1932, May) pp. 269–278.

Procedures suggested as helpful in the cure of enuresis are: encouraging the child in the belief that he can and will stop the practice, making sure the child is thoroughly awake when roused in the night to void, discovering and curing underlying psychological or personality difficulties.

What is superiority in young children, ELISE HATT. *Childhood Educ.* **8,** No. 9 (1932, May) pp. 451–457.

Light is thrown on the question of superiority and inferiority by a study of the biograms of two groups of ten children each selected from among 50 children at the Merrill-Palmer School by 39 judges, one group as representing the most desirable, the other the least desirable individuals. The desirables were taller, heavier, longer-legged, more intelligent, had better ratings in personality traits, were more active out-of-doors, ate more expeditiously, and made better drawings of a man (intelligence measure devised by Goodenough). In other words, personality plus intelligence and health combine to make a child "desir-

able," and superiority refers to physique, personality, and intelligence. Such a study demonstrates to parents the value of objectivity of judgment concerning children.

The response of infants to color, RUTH STAPLES. *J. Expt'l Psychol.* **15,** No. 2 (1932, April) pp. 119–141.

Observation of the responses of 264 infants, ranging in age from 69 days to 24 months, to equally bright red, yellow, green, and blue discs suggests that color is experienced by the end of the third month of life but that different colors are not distinguished until the twelfth to the fifteenth month. Red appeared the most effective stimulus, followed by yellow, blue, and green. Sex difference in responsiveness to color favored girls.

Identical twins reared together, HAROLD D. CARTER. *J. Hered.* **23,** No. 2 (1932, Feb.) pp. 53–66.

Tests of the ability and personality traits of four pairs of identical twins, two adult and two adolescent, brought up in environments essentially similar for the members of each pair indicate consistent intra-pair difference in ability and congenital difference in mental equipment. The study is part of an extensive investigation of twins at Stanford University.

Bed-wetting, MRS. F. E. ROBERTSON. *Maternity & Child Welfare* **16,** No. 4 (1932, April) pp. 86–88.

Parents whose children are "bed-wetters" are reminded that every normal child above the age of 2½ or 3 years who goes to bed healthily tired, happy, and not over-excited should sleep through the night without accident or waking. Deviation from this habit means that parents should ask themselves what they are doing that is wrong or should consult a specialist who understands the child mind. Three cases cited suggest underlying causes.

A ten-year child welfare plan, GRACE ABBOTT. *Parents' Mag.* **7,** No. 5 (1932, May) pp. 16–18, 46+.

The chief of the Children's Bureau, U. S. Department of Labor, outlines a progressive, well-rounded plan for raising the standard of health and well-being of all American children by putting into practice what is now known to be for their betterment and at the same time seeking for more knowledge.

The prevention and modification of measles, C. D. BARRETT. *Pub. Health Nursing,* **24,** No. 4 (1932, April) pp. 192–194.

The suggestion is made that periodic epidemics of measles might be prevented or modified by careful study of the incidence of the disease in a given district and by timely education of the parents of children under five years of age to the value of injecting a dosage of 20 cc. of adult blood from a donor with a history of a previous attack of measles.

My child as a person, WILLIAM H. KILPATRICK. *Teachers Coll. Record* **33,** No. 6 (1932, March) pp. 483–493.

Parents who wish their child to become "more of a person" are reminded that they must give him a chance to have varied experiences, aid him to face problems as they arise, and see that he has a chance to live with others his own age without too much interference but with sympathetic oversight so that he may become emotionally stable, think things through, and accept responsibility according to his age and ability.

K. K.

FOOD AND NUTRITION

Contributed by the staff of the Foods and Nutrition Division and the Food Economics Section, Bureau of Home Economics, United States Department of Agriculture

Vitamin A and protein content of various fish meals, L. A. MAYNARD, R. C. BENDER, and C. M. MCKAY. *J. Agr. Research* **44,** No. 7 (1932, April 1) pp. 591–603.

The vitamin A content together with the protein efficiency has been studied for seven different fish meals, five of them commercial products. The white fish meals prepared by vacuum drying at temperatures varying from 100 to 116°F. were found to be a good source of vitamin A in contrast to the steam-dried and flame-dried Menhaden meals, which contained negligible amounts of the vitamin. As a source of protein for growth the white fish meals were superior to the Menhaden meals, the superiority probably being due to the difference in the heat treatment.—G. M. D.

The utilization by human subjects of the nitrogen, calcium and phosphorus of the navy bean (*Phaseoulus Vulgaris*) with or without a supplement of cystine, M. PITTMAN. *J. Nut.* **5,** No. 3 (1932, May) pp. 277–294.

The results of a study of the utilization of the nitrogen, calcium, and phosphorus of the navy bean is reported. Five adult women served as subjects. In the first period the diet consisted of beans in puree or baked, butterfat, sucrose, lactose, grape juice, and lemon juice; and in the second period the same plus a supplement of cystine amounting to 2 per cent of the weight of calculated protein. The trend of nitrogen balance was increasingly negative while beans were eaten without cystine. Addition of cystine apparently improved nitrogen retention slightly. Negative calcium and phosphorus balances were found in most cases. The phosphorus was utilized somewhat better than calcium and showed a slightly favorable response to the addition of cystine. Improved utilization of phosphorus in most cases appeared to parallel better retention of nitrogen. The method of cooking had apparently little effect upon the utilization.

The authors conclude that, though beans may be eaten in comfort in quantities of at least 4 ounces dry weight daily, they are not entirely satisfactory as a chief source of nitrogen.—G. M. D.

The value of some vegetables in nutritional anemia, H. LEVINE, F. B. CULP, and C. B. ANDERSON. *J. Nut.* **5,** No. 3 (1932, May) pp. 295–306.

The potency of a number of dried vegetables in curing nutritional anemia in rats is discussed. Dried spinach, fed *ad libitum* and supplying 0.43 mg. iron and 0.0061 mg. copper per day, allowed hemoglobin regeneration in 3 to 4 weeks. Comparable results were obtained with turnip greens fed at a level of 0.425 mg. iron and 0.0179 mg. copper. The time required to effect hemoglobin regeneration with a number of vegetables each fed at a level that supplied 0.2 mg. iron per day was found to vary directly with the copper content. Listing them in order of decreasing amounts of copper they are: lettuce plus tomato mixture, asparagus, lettuce, spinach, and broccoli. The supplementary effect of lettuce, rich in iron, and tomato, rich in copper, is noted. The authors emphasize the fact that a different order of anti-anemic potency would probably result from another set of the same vegetables.—G. M. D.

The relative quantities of the heat-stable and heat-labile fractions of vitamin B in raw and evaporated milk, L. T. SAMUELS and F. C. KOCH. *J. Nut.* **5,** No. 3 (1932, May) pp. 307–324.

A quantitative comparison is made here of the B_1 and B_2 factors in raw and in commercially evaporated milk. All raw cow's milk tested was found low in the antineuritic factor, 25 cc. per rat per day being required to supply enough of this vitamin for optimum growth. Commercial evaporation of milk was found to destroy from ⅛ to ¼ of the antineuritic factor in the fresh product. To supply adequate amount of the heat-stable, growth-promoting factor 17 to 20 cc. of raw milk was required. No identifiable destruction of this factor occurred in the evaporation.—G. M. D.

The significance of hydrogen-ion concentration in panary fermentation, P. HALTON and E. A. FISHER. *Cereal Chem.* **9,** No. 1 (1932, Jan.) pp. 34–44.

Little change in hydrogen-ion concentration was observed during fermentation of doughs. Variations of 0.2 and 0.4 in pH of doughs occurred in 4 hours with 2 per cent yeast at 80°F. More change occurs in pH values during the first hour when gas production is comparatively slow than later. No relation was found between the rate of gas production and the rate of change of pH. The use of malt extract, ammonium phosphate, or cane sugar had little effect on the pH of the dough. This was true also of "knocking-back" of the dough.—M. C. S.

The relation between total protein, peptizable protein, and loaf volume as obtained by successive increments of potassium bromate, R. H. HARRIS. *Cereal Chem.* **9,** No. 2 (1932, March) pp. 147–156.

Fifteen samples of commercial, experimental, and millstream flours were used in a basic bread formula. Modifications were made by the addition of 1 per cent diastatic malt and 1 to 4 mg. of potassium bromate. The higher protein flours gave larger loaf volumes with the higher concentrations of potassium bromate.—M. C. S.

Report of activities of A.A.C.C. Baking Research Fellowship, P. P. MERRITT, M. J. BLISH, and R. M. SANDSTEDT. *Cereal Chem.* **9,** No. 3 (1932, May) pp. 175–238.

This report of experiments in bread-making covers studies of mixing, punching down, and molding of loaves, absorption of flour, yeast, fermentation bowl, baking pans, elimination of sugar from baking formula, and effect of top-oven heat during baking. Recommendations are made for the purpose of improving baking tests and standardizing methods.—M. C. S.

Comparative cooking qualities of domestic rices, M. C. STIENBARGER. *Cereal Chem.* **9,** No. 3 (1932, May) pp. 317–322.

Varieties of rice which make up the greater part of the domestic crop were tested for their cooking qualities. The procedure used was to boil gently in an excess of water, drain, and wash to remove adhering starch. The cooked samples were observed for shape, wholeness of grain, stickiness, and flavor. Considerable difference was found in the time required for cooking. Some varieties showed more disintegration of kernels and development of stickiness than others. Also, some varieties cooked unevenly because of unusually hard centers in the kernels.

It was concluded that rice varieties should not be sold as mixtures as is now

sometimes done, but on variety name and grade. The varieties were ranked in the following decreasing order of desirability on the basis of their scores in these tests: (1) Rexoro, (2) Honduras, (3) Fortuna, (4) Blue Rose, (5) Calora, (6) Edith, (7) Lady Wright, and (8) Early Prolific.—F. B. K.

Stabilizing nutrients by canning, E. F. KOHMAN. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) pp. 650–654.

This article discusses the service the canning industry performs in stabilizing food supplies by making seasonal and sectional perishable products available to all throughout the year. Original food values are very completely retained, as is shown by a large number of tests. Illustrations are cited for each vitamin. The problems still remaining for the industry largely relate to the preservation of palatability and appearance of the finished product.—M. C. S.

Comparative study of juices from frozen fruits, T. A. PICKETT. *Ind. Eng. Chem.* **24,** No. 3 (1932, March) pp. 353–354.

The juices (frozen and tested immediately) from blackberries, cherries, dewberries, peaches, pears, plums, raspberries, and strawberries have a greater titratable acidity than juices from most fruits. Differences appear to be due to a breaking down or increased permeability of the cells upon freezing so that a more complete extraction takes place. Juices of fruits frozen at lower temperatures are more nearly like fresh juices in titratable acidity than those frozen at higher temperatures. Increases in acidity of juices of frozen and stored fruits are due to a concentration of the same type of acids present in the fresh juices.—R. L.

Hydrogen-ion concentration in preservative action, W. V. CRUESS. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) pp. 648–649.

Two series of experiments were made, one on naturally contaminated food products and one on pure cultures of common fermentation and food spoilage organisms, in an effort to determine the effect of the hydrogen-ion concentration of the medium on the toxicity of various preservative agents. It was found that in the case of foods of low acidity and of pH values common in non-acid vegetables, ripe olives, and meat products, sodium benzoate and other preservatives of salts of weak acids cannot be safely used as preservatives, since B. botulinus grows and produces toxin in the presence of relatively high concentrations of sodium benzoate at or near neutrality. Apparently the undissociated weak acids are the preservative agents rather than their ions.—V. S. W.

Sulfur dioxide as dried fruit preservative, P. F. NICHOLS and W. V. CRUESS. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) p. 649.

In the drying of apples, apricots, peaches, and pears the use of sulfur dioxide plays an important part. Recent investigations have shown that the sulfur dioxide content is lost through volatilization or oxidation during storage and during the soaking and cooking of the fruit for table use. In addition, vitamins A and C are almost completely preserved through the use of sulfur dioxide.—R. L.

Microbiology of canning, W. D. BIGELOW and E. J. CAMERON. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) pp. 655–658.

Bacterial spoilage of canned foods is of two kinds: first, the entrance of spoil-

age microörganisms after food is sterilized, known as leakage; second, the survival of spoilage organisms through the process. Therefore, effective sterilization by heat and subsequent protection against contaminated contacts are essential factors in successful preservation by canning. All vegetables and fruits are grouped as: non-acid—peas and corn; semi-acid—string beans, spinach, asparagus; and acid—fruits, berries, and tomatoes. The upper limit of the acid range may be taken at pH 4.5; below this point spore-forming bacteria cease to be factors in spoilage and the process need not be sufficiently severe to destroy them. The general causes of understerilization of canned foods are excessive contamination and insufficient process as to destroy normal contamination. The necessity and means for control of contamination sources have been clearly shown by recent work.—V. S. W.

Sterilizing canned foods, G. V. HALLMAN and R. G. STEVENS. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) pp. 659–661.

The types of spoilage that may develop in canned foods are discussed. Understerilization may occur in both acid foods and non-acid foods, and is caused by resistant organisms. In acid foods such organisms are capable of growth at a pH of 4.5 or lower and may commonly be destroyed by a few minutes heating at 180°F. In non-acid foods spoilage due to underprocessing is caused by very heat-resistant spore-forming bacteria. Four groups are known in the canning industry as putrefactive anaerobes, flat sours, thermophilic anaerobes, and thermophilic anaerobes producing hydrogen sulfide. Growth of the obligate thermophiles of these groups may be prevented by immediate cooling of contents of the cans to 104°F.

A definite process for each canned food is required to prevent spoilage due to underprocessing. Processes may be determined by correlating the rates of heat penetration of foods with the heat resistance or thermal death times of spoilage organisms. The thermal death time is the period required to destroy completely at a certain temperature a known concentration of spores in a definite medium. With all conditions constant the death time decreases as the sterilization temperature increases, and for heat-resistant spores is generally 100 times longer at 212°F. than at 250°F.

While much dependence can be placed on calculated processes, these are usually checked by tests in which the containers of foods have been inoculated with a definite concentration of the spoilage organism.—M. C. S.

Microörganisms as affecting frozen foods, C. A. MAGOON. *Ind. Eng. Chem.* **24,** No. 6 (1932, June) pp. 669–671.

This general discussion of the microbiology of frozen foods shows that molds, yeasts, and bacteria are the three groups of microörganisms responsible for spoilage of frozen foods and some of these agents of decay survive and even increase in numbers at sub-zero temperatures, although the majority are usually killed by freezing temperatures in food products. The changes brought about may be both physical and chemical, the microbial activities resulting in changes in texture, color, flavor, and healthfulness of foods. The importance of the use of sound fresh fruits and vegetables, prepared, packed, and frozen in a sanitary manner, and of keeping them frozen continuously until needed for immediate use is emphasized.—V. S. W.

Preservation problems in the dairy industry, JOHN H. NAIR. *Ind. Eng.*

Chem. **24,** No. 6 (1932, June) p. 671.

That dairying constitutes the largest single industry in the United States is apparent from figures here offered. The preservation of dairy products is a vital problem to the entire population because of their importance in the diet and the great perishability of milk. Such factors as storage, temperature control, moisture, preparation of product, wrappings, containers, equipment materials, contaminations, handling, and chemical changes are discussed in detail in connection with fluid milks, concentrated milks, butter, ice cream, cheese, and frozen cream.

Seasonal price changes may be leveled by the improved condition of dairy products after storage, and the possibility of longer storage of surpluses through seasons of low price may prove of economic value.—V. S. W.

Lamb becomes more tender when ripened by period of storage, K. F. WARNER and LUCY M. ALEXANDER. *U. S. Dep't Agr. Yearbook of Agriculture* (1932) pp. 260–263.

The tenderness for 1,222 leg roasts obtained from as many lambs was estimated by a machine which indicated the shearing strength in pounds and by a judging committee who chewed the meat. The legs were stored from 2 to 23 days before being tested. Both methods showed a marked increase in tenderness with storage up to 10 days and only slight changes thereafter.

Forty-eight paired samples which were cooked and tested on the same days showed no significant difference in the average tenderness of left and of right legs. The effect of ripening one leg of each pair was then tried; 60 left lamb legs "were cooked and tested within 2 to 6 days after slaughter and the corresponding right legs held until 12 to 21 days before being cooked and tested by the same method. . . . The results confirmed those indicated by the 1,222 individual samples."—N. G. C.

Pork loins, when seared, shrink more in weight though cooking faster, NANCY GRISWOLD CLARK. *U. S. Dep't Agr. Yearbook of Agriculture* (1932) pp. 303–304.

Paired samples of pork loins were seasoned and cooked to a well-done stage, 183°F. internal temperature. One loin of each pair was seared 30 minutes at 482°F. and finished at 320°F. The corresponding loin was cooked at a constant oven temperature of 320°F. The seared loins averaged 5 minutes to the pound less in cooking time but showed a total shrinkage of 25.4 per cent as compared with the 22.3 per cent loss of the unseared loins and greater loss through evaporation and drippings.—N. G. C.

INSTITUTION ADMINISTRATION

Out of the red with tomato juice, C. H. McBUCH. *Am. Restaurant Mag.* **15,** No. 3 (1932, March) pp. 29–30, 80.

Since tomato juice has so suddenly become a popular adjunct to the diet for all meals, it serves admirably to illustrate the cost of experimenting and the loss of customer's faith through lack of uniformity in taste for specific foods.

Waxing terrazzo floors without producing a slippery surface. *Bldgs. & Bldg. Management* **32,** No. 6 (1932, March 21) p. 33.

An approved simple method is described which results in economical upkeep and satisfaction.

Comparing operating costs on an equal basis, J. C. DOWNS. *Bldgs. & Bldg. Management* **32,** No. 7 (1932, Apr. 4) p. 43.

A method of comparing costs of operation from the standpoint of efficiency of management is described which is based on the quotient of hours of labor and of units of material.

Reducing power bills by systematic cost analysis. *Bldgs. & Bldg. Management* **32,** No. 9 (1932, May 2) pp. 26–29.

An engineer's report of a technical analysis of power requirements for elevators, engine room, cafeteria, miscellaneous services, and toilets. Definite recommendations for economy are made for each division.

The adjustment of operation of hospitals to the economic depression, CHARLES S. WOODS. *Bull. Am. Hosp. Assoc'n* **7,** No. 4 (1932, April) pp. 26–32.

Eighteen directions are indicated for retrenchment of expenses with a falling income. While the discussion is specifically for the hospital executive, most of the suggestions are adaptable to other institutions.

What place does centralization have in hospital management? CHARLOTTE F. LANDT. *Bull. Am. Hosp. Assoc'n* **7,** No. 4 (1932, April) pp. 121–131.

The needs for and advantages of centralization are discussed with respect to the tools and supplies department, food service, dietetic training of nurses, and nursing equipment. A list of references is given.

Blankets for hotels and hospitals, H. R. VAN SAUN. *Bull. Am. Hosp. Assoc'n* **7,** No. 4 (1932, April) pp. 132–138.

Recommendations to purchasers of blankets to be washed frequently specify American cotton warp, 50 per cent long staple woof, and 50 per cent china cotton for filling. If a large percentage of wool is used it should be properly shrunk. Proper blanket washing demands plenty of water not over 98°F. in temperature and a soap free from alkali. The "whipped edge" is more economical than ribbon bindings.

The organization of the hospital dietary department, EFFIE I. RAITT and MARY W. NORTHROP. *Bull. Am. Hosp. Assoc'n* **7,** No. 4 (1932, April) pp. 139–142.

The ideal organization is pictured as having a dietitian at the head of the staff and the chief divisions as consisting of the department general food service, special diet service and instruction of patients, service in out-patient clinic, teaching of student nurses and student dietitians, and housekeeping, each with subdivisions according to requirements.

Accounting in modern management, F. M. THUDSON. *Catering World* **2,** No. 4 (1932, April) pp. 14–16, 54+.

A description and explanation of the system used at the Hotel New Yorker, showing some of the application of cost accounting principles to the hotel industry.

Designing big school capacity, AIMEE MORRISON. *Catering World* **2,** No. 4 (1932, April) pp. 22–25, 55.

Floor plans and equipment of Marshall High School Cafeteria in Chicago are here given.

The cafeteria manual, a handbook of general cafeteria practises for the public schools of Hawaii. *Catering World* **2,** No. 4 (1931, April) p. 32.

The first installment of a series of papers reproducing a manual prepared by the division of vocational training, and based on ten years' experience. It aims to further the development of an efficient cafeteria service and improve the health of the school children in Hawaii.

Menu planning at New Florida High, EDITH PENTREATH. *Catering World* **2,** No. 4 (1932, April) pp. 44–46.

A brief description is given of the policies and methods by which Mrs. Bergh, the manager, proposes to provide a wholesome, substantial meal to the students of this school and to further health education by encouraging good eating habits.

Country and golf club wage schedules. *Catering World* **2,** No. 5 (1932, May) pp. 9–12.

This first report of a questionnaire deals with size of unit, staff, and wages, and will be of interest to institution employers for purposes of comparison.

Whose responsibility will the school lunch room become? J. C. MITCHELL. *Catering World* **2,** No. 5 (1932, May) pp. 37–38, 40.

A survey of the administrative problems introduced by the cafeteria indicates that responsibility in smaller towns is within the local schools, while in larger towns and cities it is a function of the school board.

If fixed salaries were not fixed, P. W. SCHUBERT. *Factory & Indus. Management* **83,** No. 5 (1932, May) pp. 198–199.

A plan is suggested to divide the burden of a depression and the profit of good times more equitably between the workers and salaried staff by fluctuating both wages and salaries from a nominal or base rate.

Should trays be served by nurses or by dietitians? MARGARET MCGOVERN. *Hosp. Management* **33,** No. 4 (1932, April) pp. 66, 68.

In this analysis of factors entering into good food service, it is advocated that all preparation and serving of food be under the supervision of the dietary department and that nurses serve the food on the floors under this supervision, thus making it a valuable part of their training.

Illinois state institutions like cafeteria systems, A. L. BOWEN. *Hosp. Management* **33,** No. 4 (1932, April) pp. 74, 76.

In addition to the economic advantages, the author regards cafeteria service as a therapeutic measure and a builder of morale for mental cases.

What's wrong with dietary departments in Southern hospitals? FAIRFAX T. PROUDFIT. *Hosp. Management* **33,**

No. 5 (1932, May) pp. 66, 68, 72+.

Outstanding obstacles to good food service in Southern hospitals are poor equipment and shortage of efficient help. The department is said to show the need for organization of responsibilities, cooperation, and contact under the leadership of a qualified chief.

Who should direct the food service of a hospital? *Hosp. Management* **33,** No. 5 (1932, May) pp. 74, 80.

The opinions of various hospital superintendents are given in reply to questions asked in an earlier (March) article on poor food and food service and on chef versus dietitian.

To prevent accidents in hotels. *Hotel M'thly* **40,** No. 469 (1932, April) pp. 52–56, 58+.

This article presents a classification of predominating causes of accidents and the organization of a safety plan which is being successfully carried out in one hotel.

Preparing menus from standpoint of cost, R. McGUNSTEAD. *Hotel M'thly* **40,** No. 470 (1932, May) pp. 38–41.

Ten basic laws are given which govern the making of profitable menus. The composition of menus and the costs of the food included are the underlying factors in food profit.

A comparative labor study of full-time and part-time employees, MILDRED ENOCHS and DALE YODER. *J. Am. Dietetics Assoc'n* **8,** No. 1 (1932, May) pp. 56–60.

A report of five groups of full-time and part-time workers studied for quality and quantity of work on the basis of the amount and speed of work accomplished, cleanliness of dishes, and breakage.

Where diet is made both a science and an art, RHODA A. TYLER and C. W. MUNGER. *Modern Hosp.* **38,** No. 4 (1932, April) pp. 83–88.

A description of the food service at Grassland Hospital, Valhalla, New York.

Striving for the ideal in food service, F. A. CARMICHAEL. *Modern Hosp.* **38,** No. 5 (1932, May) pp. 71–74.

The proper distribution and service of food depends on organization, physical equipment, proper selection of food, adequate sanitation, and an ideal.

Shall the special diet kitchen be eliminated? KATHERINE THOMA and HERMAN SMITH. *Modern Hosp.* **38,** No. 5 (1932, May) p. 134.

A method of handling therapeutic diet as a modification of the general hospital dietary is discussed in this last article of a series.

Macy's holds a food show daily for food servers and waitresses, GEORGE KENDALL. *Restaurant Management* **30,** No. 4 (1932, April) pp. 236, 239.

Waitresses at the Macy Restaurant, New York City, are given specific training and thorough inspection. A sample serving of each dish on the menu is displayed to the staff as an aid in standardizing and improving service.

M. DE G. B. AND G. M. A.

MISCELLANY

Coordination of School and College Work. The personnel and plans of the commission appointed by the Progressive Education Association to study this important subject are given in *School and Society* for June 18 by Wilford M. Aikin, chairman of the commission. Funds for the work have been provided by the Carnegie Corporation.

National Survey of Secondary Education. Significant quotations from the speech which Dr. Leonard V. Koos, director of the survey, made at the dinner in honor of its completion (see page 750) are found on page 828 of *School and Society* for June 15.

Hotel Guests and Home Study Courses. Hundreds of hotel residents are said to be enrolled in the home study courses offered by Columbia University and to make unusually successful home students. Popular subjects are psychology, story and magazine writing, English and foreign languages, and various more specifically vocational topics, among them interior decorating.

Money Management and the Schools. Congresswoman Edith Nourse Rogers of Massachusetts addressed a general session of the National Education Association at Atlantic City on "The Most for Your Money," making a plea for teaching all children how to manage their money affairs, perhaps on a plan similar to that used in the Brookline schools and described by its originator, Florence Barnard, in the JOURNAL for January, 1930.

Growth and Development. The address delivered by T. Wingate Todd of the Brush Foundation and Western Reserve University at the Governor's Conference on Child Health and Protection, Columbus, Ohio, January 21, 1932, has been issued in pamphlet form. As long as the supply for free distribution lasts, single copies may be obtained on request from the White House Conference on Child Health and Protection, U. S. Department of the Interior, Washington, D. C., or they may be purchased in quantity from the Brush Foundation, Cleveland, Ohio.

Mental Hygiene Aspects of the Family. The three papers by J. S. Plant on this subject which appeared recently in *The Family* and will be abstracted in an early JOURNAL have been reprinted in a single pamphlet. Copies of the latter may be purchased for 25 cents each from the Family Welfare Association of America, 130 East 22d Street, New York City.

New and Old in Baby Carriages. From *Science News Letter* we learn of a new style baby carriage hood of glass that lets ultra-violet rays through and keeps the infra-red rays out; while *Hygeia* for July gives a page of pictures showing babies, from Eskimo-land to Australia, "just perambulating."

Sales Policies in the Gas, Ice, and Electric Industries. Some idea of the effect of competition and hard times on certain industries is obtained from *The Business Week* of June 22. This one issue includes a description of the proposed two million dollar drive to sell gas ranges, of a large British Columbian electrical concern's new policy of reconditioning electrical appliances for sale in its second-hand department, of the use by one dealer of a telephone stunt

to sell refrigerators, and of the campaign which the ice industry is about to launch in favor of "approved refresherators"——alias guaranteed ice boxes. This last will claim that with electric refrigeration the moisture deposited on the coils is absorbed from the food; that only a properly baffled ice "refresherator" can supply the requisite circulation of air; and that the variation of temperature due to the turning on and off of the electrical substitute for ice tends to injure the physical structure of the food.

"Schools Can Bring Better Times." Under this caption John K. Norton, formerly director of research in the National Education Association, discusses in *School Management* for June the relations of education to economics and prosperity. Among other points, he speaks of the school as "society's agency *par excellence* for the education of intelligent consumers."

German Label for Bedding. The Federal Health Department in Germany has adopted a distinctive mark bearing the word "Rein" (clean) for use on bedding which comes up to the official standards of cleanliness. *Die Deutsche Hausfrau*, the official magazine of the Federation of German Homemakers' Associations, urges members to look for it in purchasing.

How We Use Our Money. Although the study made of consumer markets by *The Business Week* may be noted in the JOURNAL's next abstracts on family economics, readers may be glad to have their attention called now to this series of articles in early summer issues of *The Business Week*. They show the amounts expended for different types of goods and services in each year from 1919 to 1930.

Commercial Prize for Vitamin Research. The following advertisement is from *Science*, June 24: "To assist in adducing the real facts concerning vitamin A, so that it may attain the same reliable status of vitamin D knowledge, Mead Johnson & Company offer an award of $15,000 for the most conclusive clinical research on vitamin A." The address of the firm is Evansville, Indiana.

Eugenics Exhibit and Congress. An exhibition to show the history and status of eugenics research will be held at the American Museum of Natural History, New York City, August 22 to September 22. It has been arranged in connection with the Third International Congress of Eugenics, which was held at the Museum August 21 to 23 under the presidency of Dr. Charles B. Davenport of the department of genetics, Carnegie Institution of Washington. This Congress is closely allied with the Sixth International Congress of Genetics held at Cornell University immediately after the meetings in New York City.

The Economic Situation and the Way Out. The many home economists who are anxious to keep abreast with progressive, well-informed thinking on such subjects will welcome the announcement that the *Survey Graphic* is to run a series of occasional articles by experienced Americans on the situation in this country. The first paper, which appeared in July, was "Socialized Capitalism" by Albert G. Milbank, a man whose business standing and social-mindedness are shown by the fact that he is director of several leading banks and corporations, president of the Milbank Memorial Fund, and vice-president of the New York Association for Improving the Condition of the Poor.

OUR CONTRIBUTORS

Liberty Hyde Bailey, internationally known for his interest in the improvement of rural life and long connected with the School of Agriculture at Cornell University, was responsible for bringing Miss Van Rensselaer there in 1909. **Albert Russell Mann,** now provost of Cornell University, was for many years the dean of the school or college in which the home economics was carried on. **Katherine Glover** is a free lance writer who has been closely associated with Miss Van Rensselaer since the War when she helped with publicity for the food conservation campaign in New York State and for the U. S. Food Administration; more recently she has been in charge of the editorial work for the White House Conference on Child Health and Protection.

Andrew G. Truxal, assistant professor of sociology at Dartmouth College, belongs to the increasing group of sociologists who see the wider values of education for homemaking.

John T. Wheeler is head of the teacher-training work at the State College of Agriculture, Athens, Georgia, and also professor of rural education. His education was received in his native state of Pennsylvania, at the University of Wisconsin, and at Cornell University, the last granting him the degree of doctor of philosophy. He has had varied teaching experience in rural schools, normal schools, and colleges.

Mable R. Pashley, teacher of home economics at the Benjamin Franklin High School in Rochester, New York, has sandwiched graduate study in with teaching since she was graduated from Cornell University.

Marietta Eichelberger, now director of the nutrition service of the Evaporated Milk Association, Chicago, was for five or six years assistant national director of the nutrition service of the American Red Cross. The holder of master's and doctor's degrees from the University of Chicago, she has had varied experience in teaching and in social service work along the lines of nutrition.

Virginia Ruth Brown teaches vocational homemaking in the Upshur County High School, Buckhannon, West Virginia. While she was an undergraduate at Iowa State College she spent six weeks in a home management house where an eleven-month youngster, the pride and joy of the girls, gave her the taste for learning child care with real babies.

Mary Wilson, now head of the home economics teacher-training department at Mississippi State College for Women, is an alumna of that institution with a master's degree from the University of Chicago and several years' experience as itinerant teacher trainer in Mississippi.

Gladys J. Ward, associate in home management at the University of Illinois, has contributed several papers to the JOURNAL OF HOME ECONOMICS, including one in July 1930. **Louise Young,** who was graduated from the University of Illinois in June, assisted in the study here described as part of her work in a home management course.

Eleanor R. Maclay is professor of nutrition at the University of Cincinnati, where her work is distinguished by its active cooperation with sixteen local social service organizations. Another unusual feature is its "rat service," which supplies animals at low cost for public school feeding demonstrations. She is a bachelor from the University of Missouri and a master from the University of Chicago.

Merle Ford, assistant supervisor of home economics education in Baltimore, has taught in Missouri, Oklahoma, and Iowa, and has studied in various places, receiving the master's degree from Columbia University.

Mabel G. Flanley and **Eleanor M. Johnson** are graduate students in nutrition at the University of Washington. Miss Johnson is doing work preparatory to the study of medicine. Miss Flanley is a dietitian, having served at Seattle General Hospital, as private consultant, and at Alfred Hospital in Melbourne, Australia.

Hazel Munsell, head of the nutrition studies section in the U. S. Bureau of Home Economics, was a contributor to the JOURNAL for April 1930. **Hilda Black Kifer,** a member of the same staff, is a graduate of Kansas State College and took the master's degree at Columbia University, working under Dr. H. C. Sherman.

C. R. Fellers has been in charge of research work in food preservation at the Massachusetts State College for the last six years. Since his graduation from Cornell in 1915 he has been continuously engaged in some phase of food research and has published many papers in this field. **Paul D. Isham** was a research fellow at the Massachusetts State College, his alma mater, working under Dr. Fellers when this study was made. Massachusetts State College is the only institution in the East with a well organized department of food preservation and has a fine new building entirely devoted to such work.